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US005956491A

**United States Patent** [19]**Marks****Patent Number:** 5,956,491**Date of Patent:** Sep. 21, 1999[54] **GROUP COMMUNICATIONS  
MULTIPLEXING SYSTEM**

[76] Inventor: Daniel L. Marks, 3116 Mary Kay, Glenview, Ill. 60025

[21] Appl. No.: 08/617,658

[22] Filed: Apr. 1, 1996

[51] Int. Cl. 6 G06F 17/00

[52] U.S. Cl. 395/200.8

[58] Field of Search 395/200.8, 330, 395/175, 331, 332; 379/93, 96

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*Primary Examiner*—Ellis B. Ramirez*Attorney, Agent, or Firm*—Peter K. Trzyna

## [57]

**ABSTRACT**

A computerized human communication arbitrating and distributing system, including a controller digital computer and a plurality of participant digital computers, each of the participant computers including an input device for receiving human-input information from a human user and an output device for presenting information to the user, each said user having a user identity. A connection, such as Internet, links the controller computer with each of the participant computers. Controller software runs on the controller computer to arbitrate in accordance with predefined rules including said user identity, which ones of the participant computers can interact in one of a plurality of groups through the controller computer and to distribute real time data to the respective ones of the groups. Participant software runs on each of the participant computers to handle a user interface permitting one said user to send a multimedia information message to the controller computer, which arbitrates which of the participant computers receive the multimedia information message and conveys the multimedia information message to the selected participant computers to present the multimedia information to the respective user.

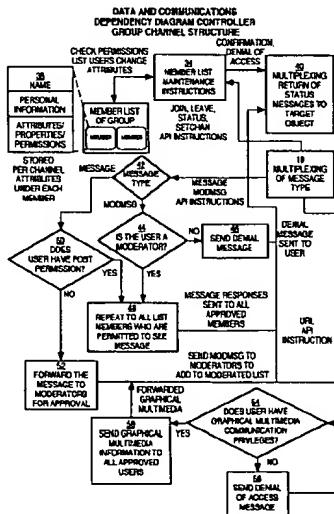
**74 Claims, 22 Drawing Sheets**Microfiche Appendix Included  
(3 Microfiche, 296 Pages)

FIG. 1

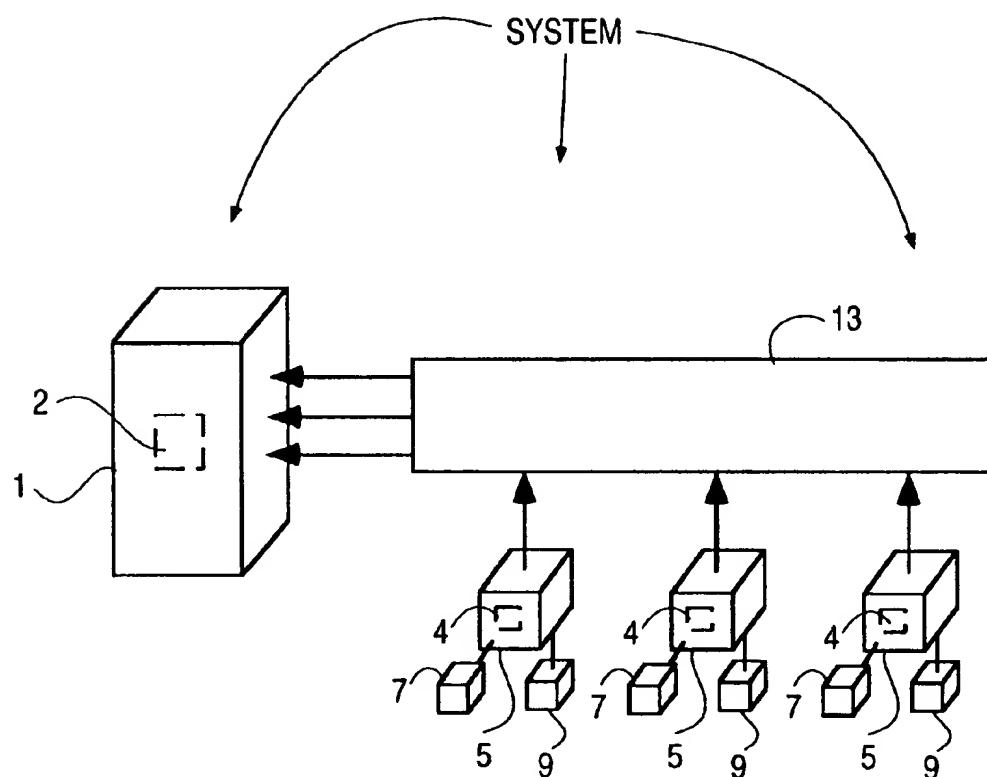


FIG. 2

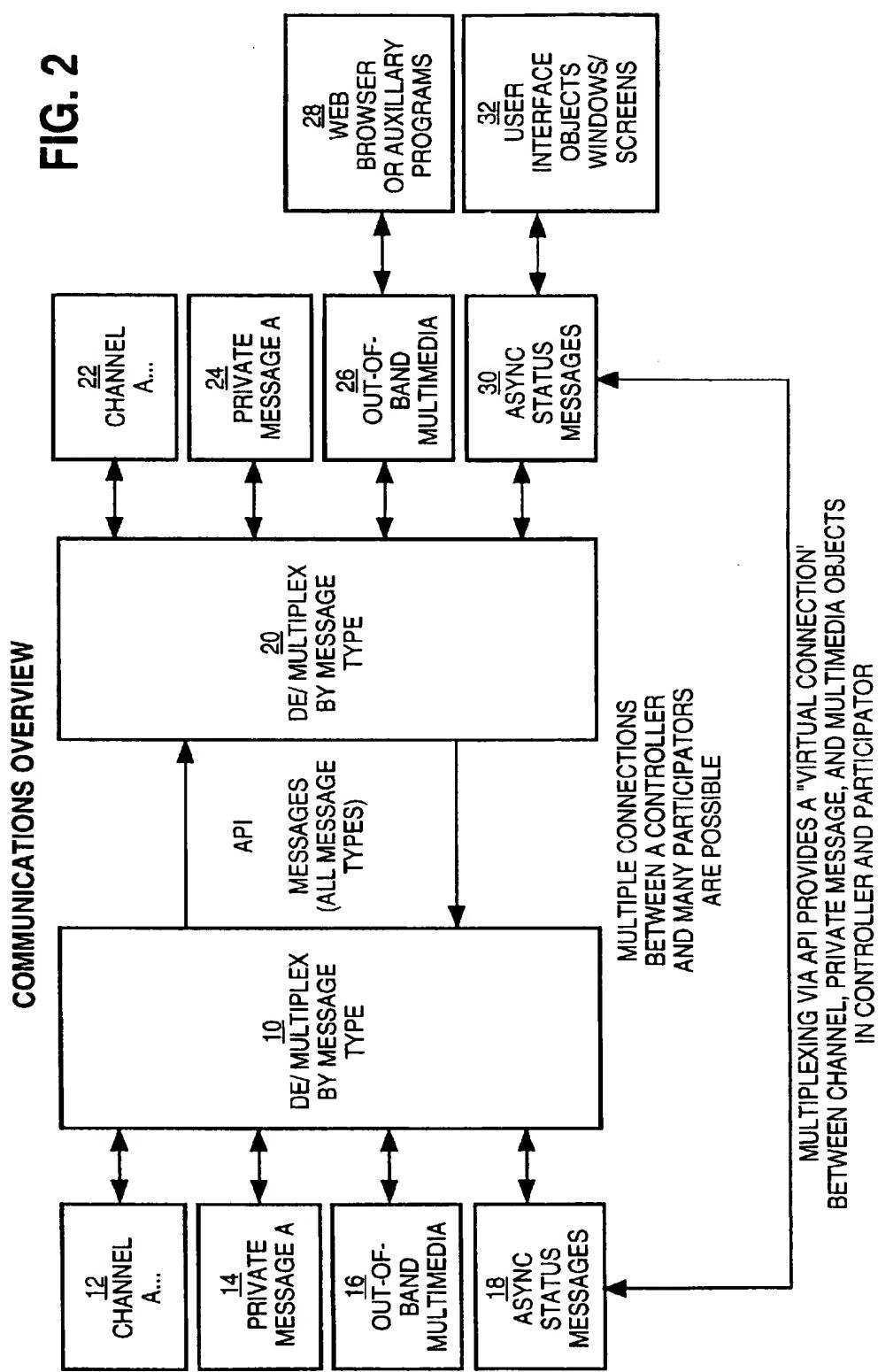
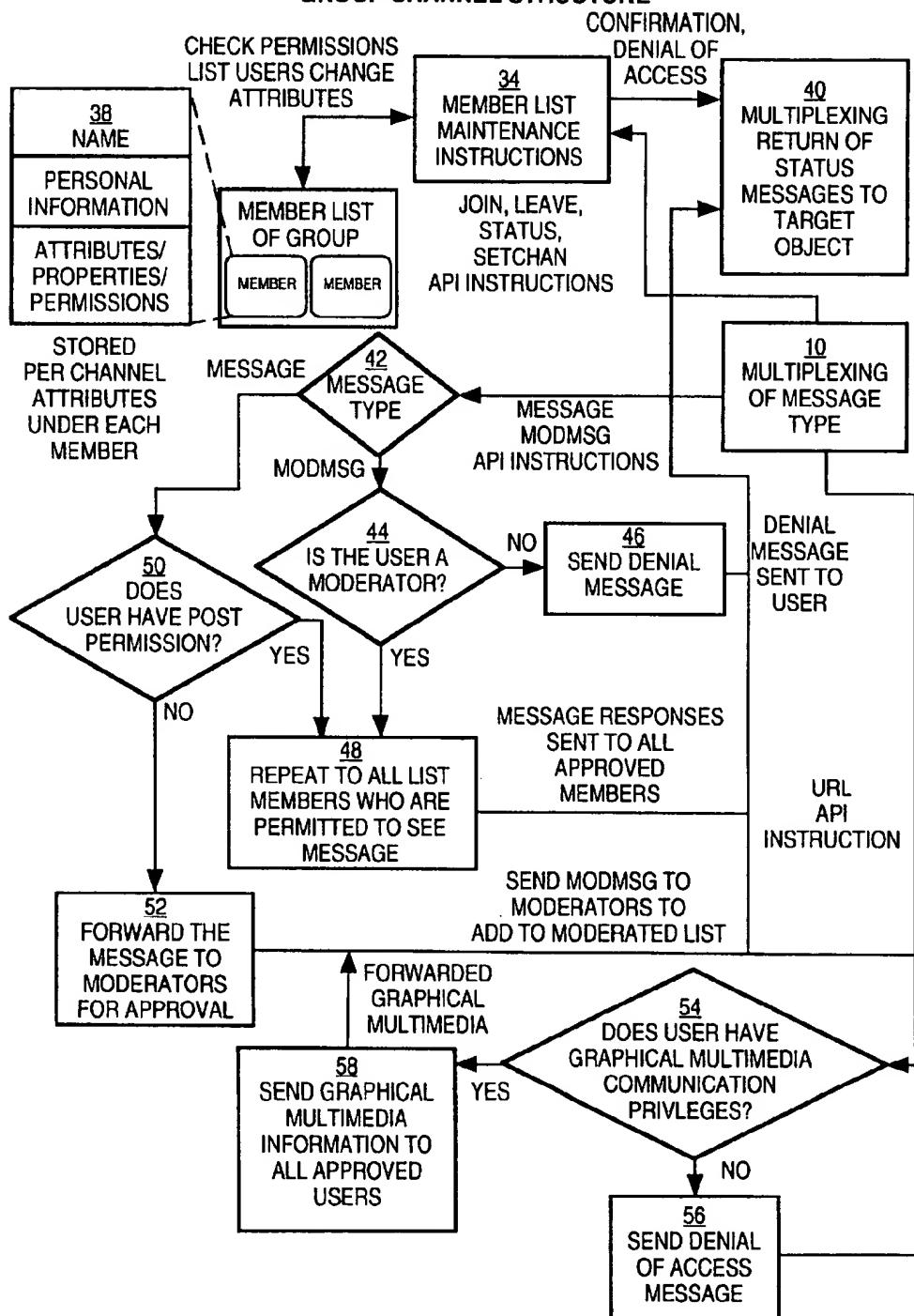


FIG. 3

DATA AND COMMUNICATIONS  
DEPENDENCY DIAGRAM CONTROLLER  
GROUP CHANNEL STRUCTURE

**FIG. 4**  
CENTRAL CONTROLLER LOOP COMMUNICATIONS

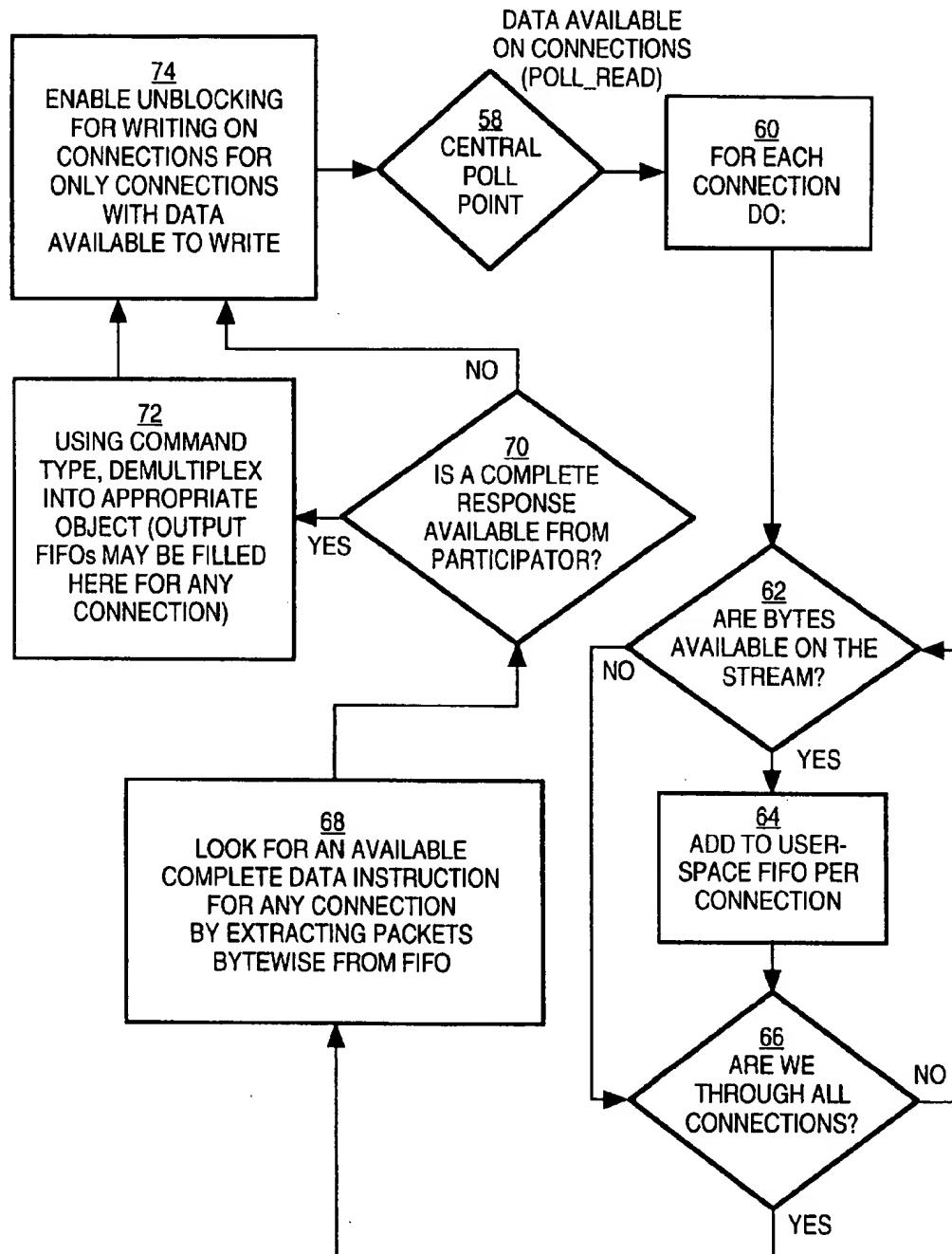


FIG. 5

CLIENT CHANNEL DATA STRUCTURE AND INFORMATION FLOW DIAGRAM

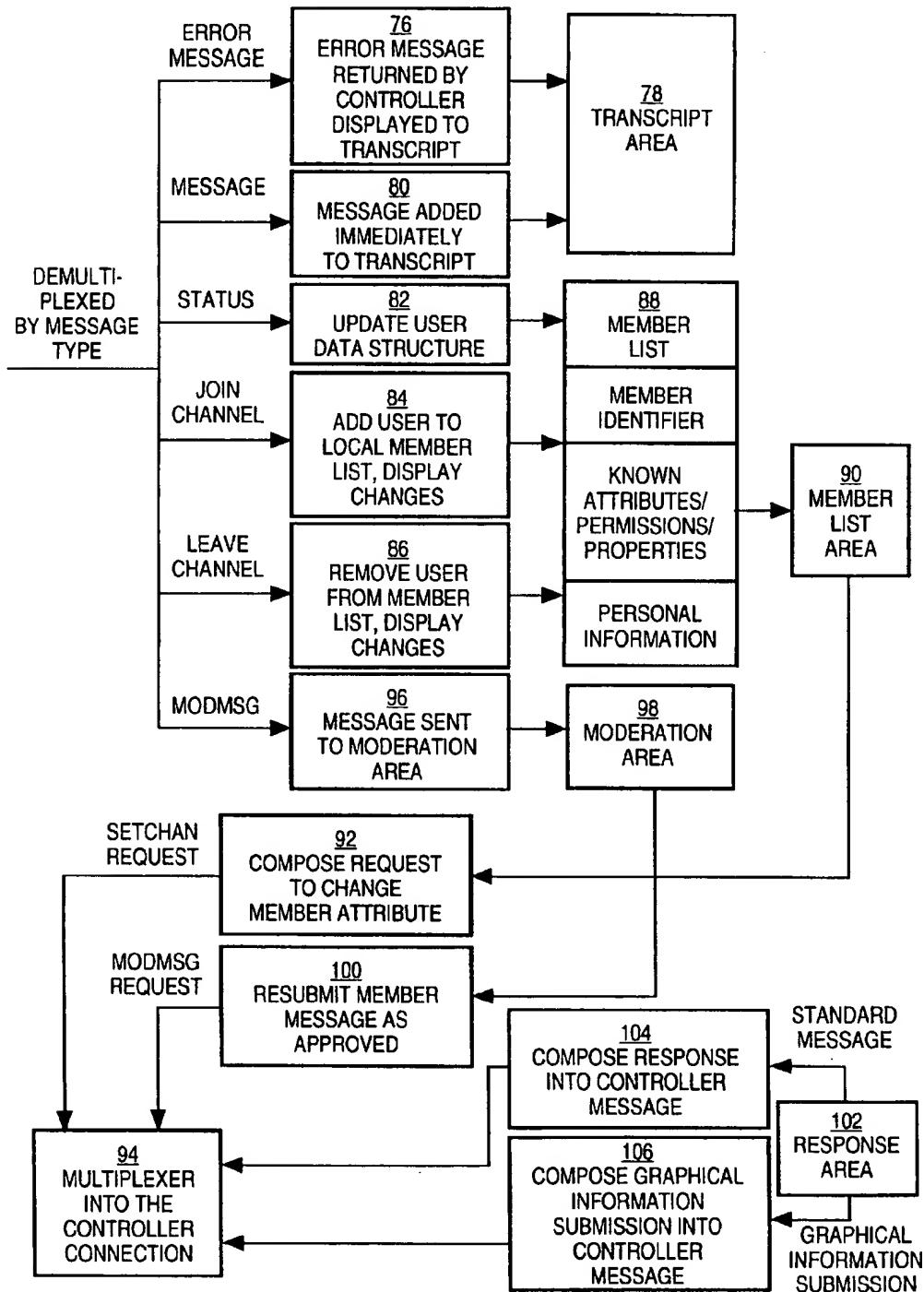
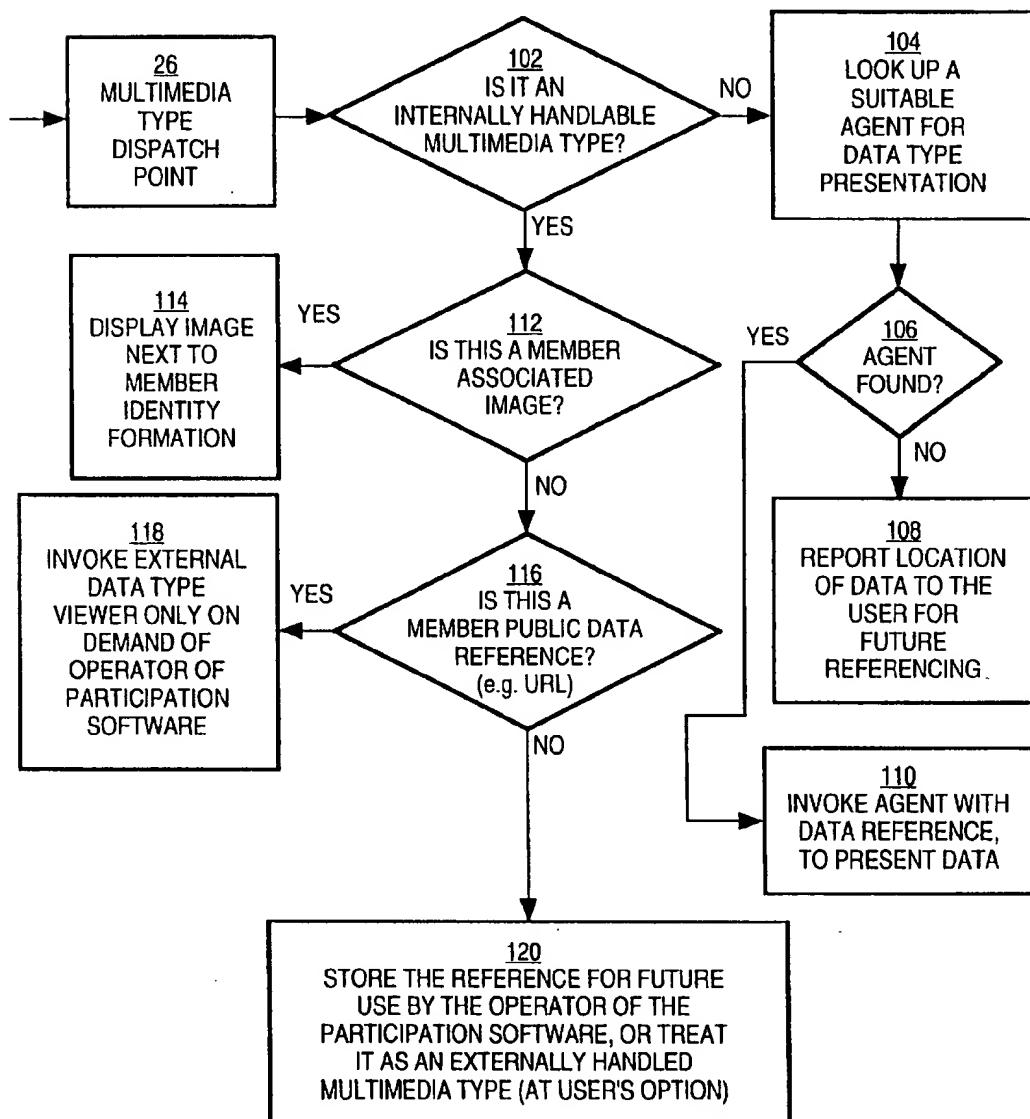


FIG. 6

PARTICIPATION SOFTWARE OUT-OF-BAND MULTIMEDIA  
OUT-OF-BAND MULTIMEDIA INFORMATION FLOW DIAGRAM

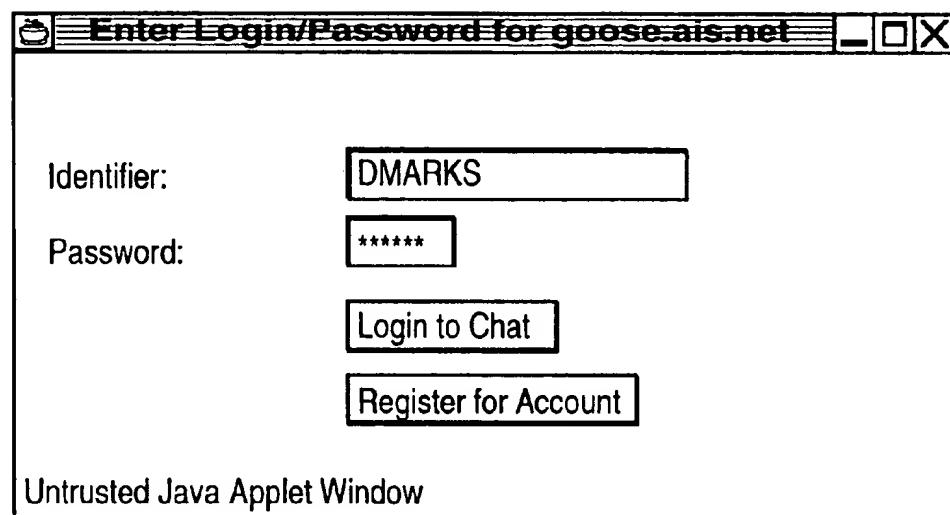
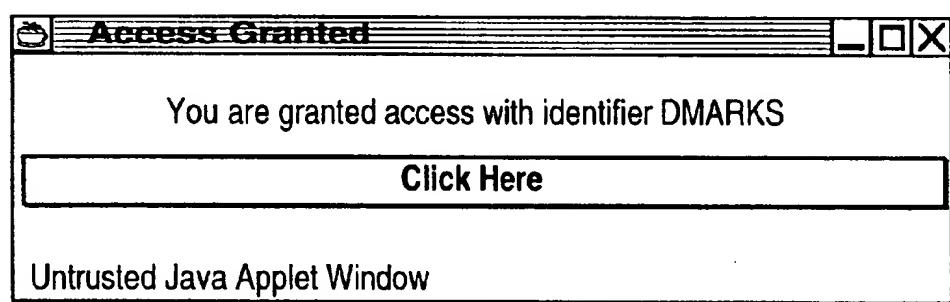
**FIG. 7****FIG. 8**

FIG. 9

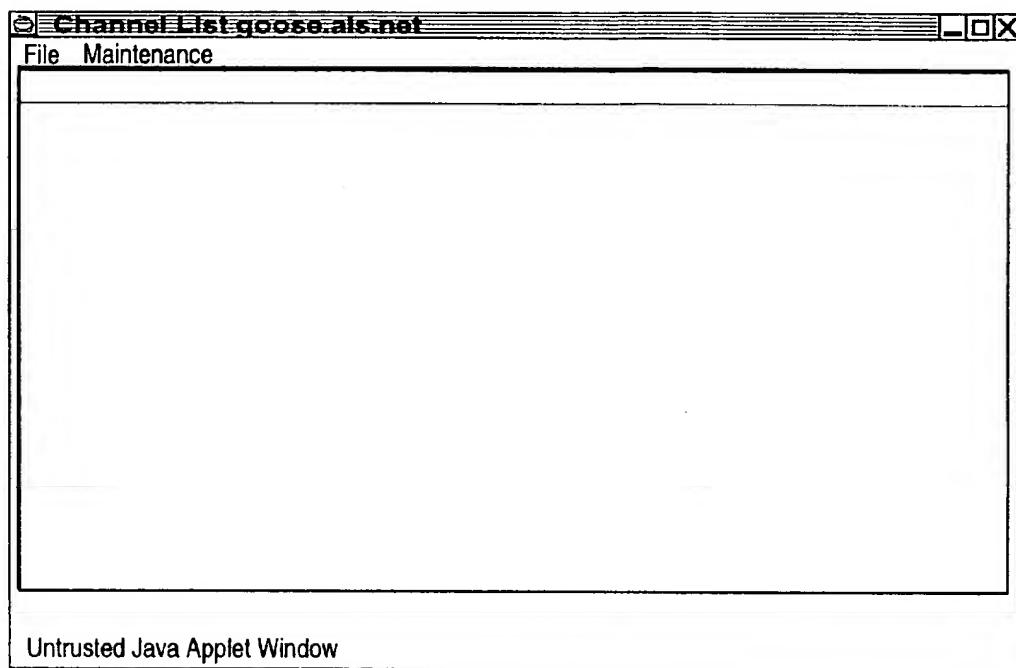
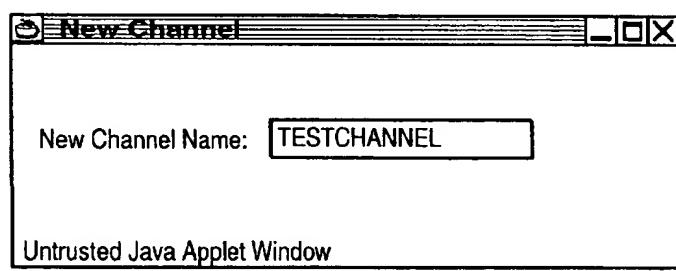


FIG. 10



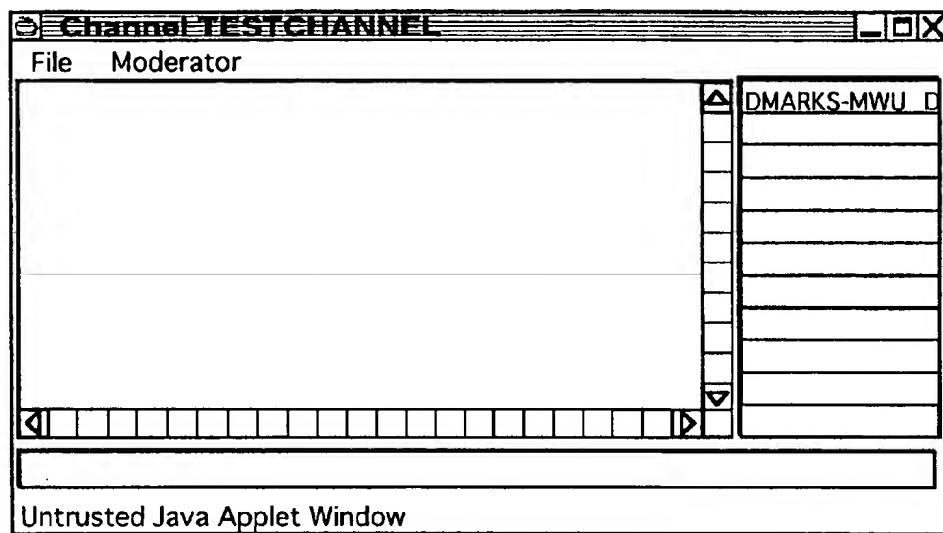
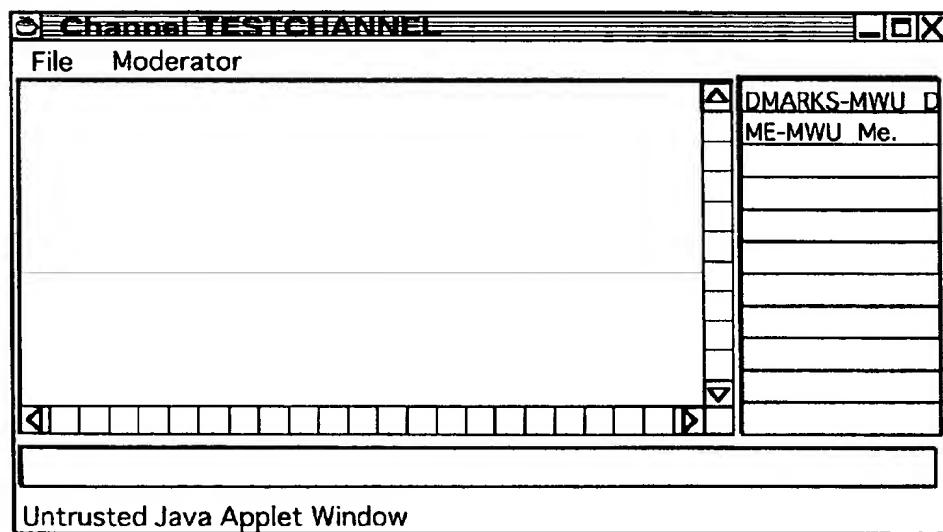
**FIG. 11****FIG. 12**

FIG. 13

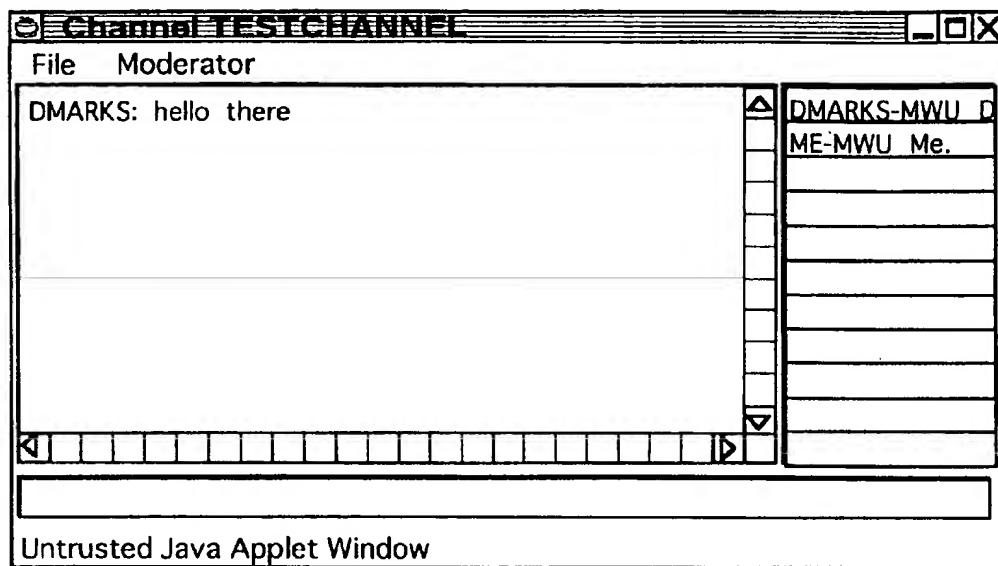
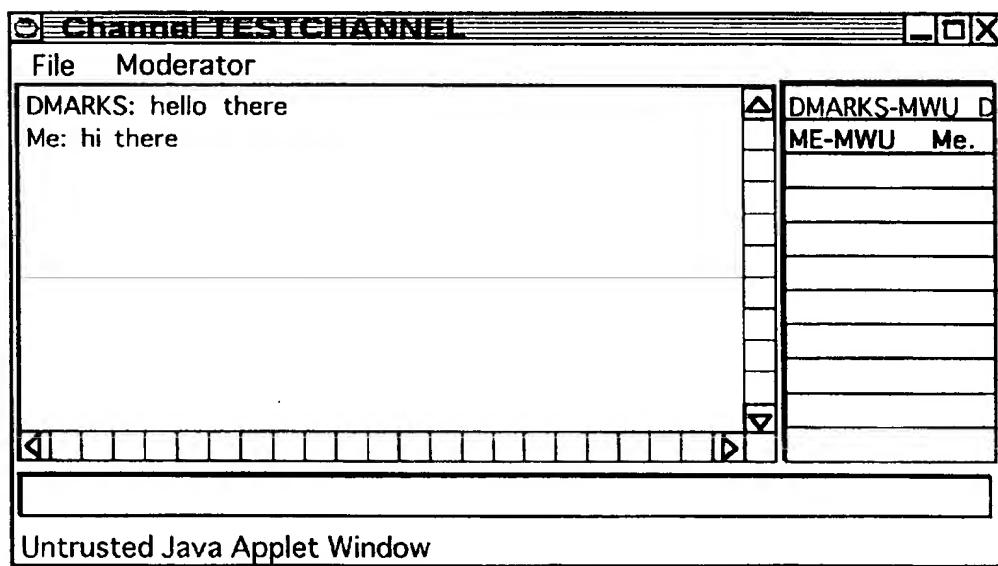
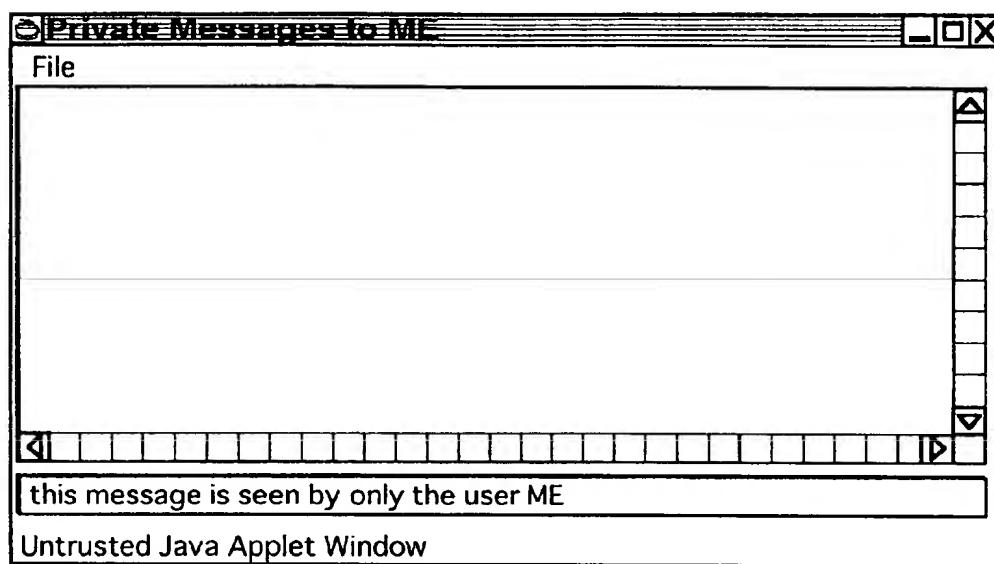
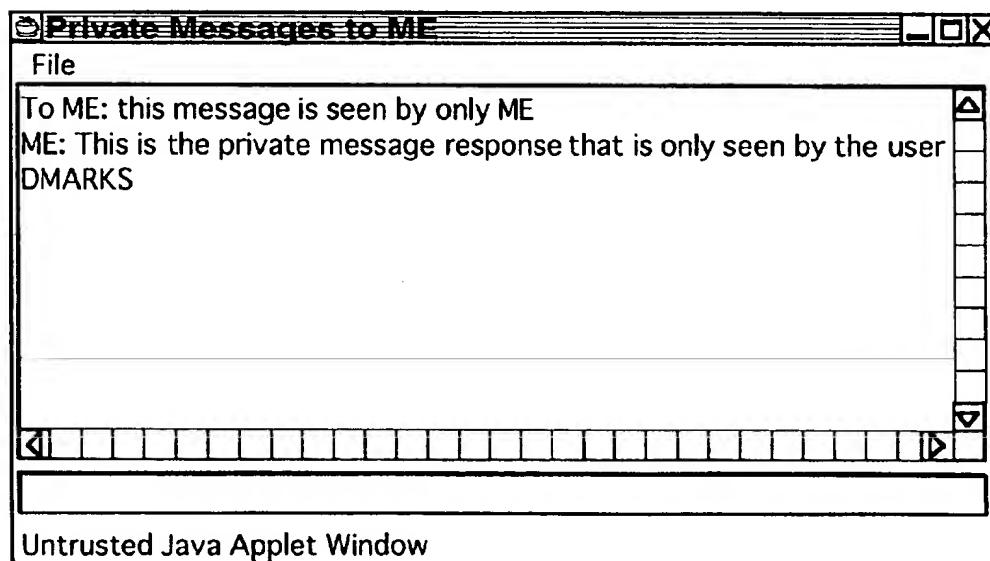
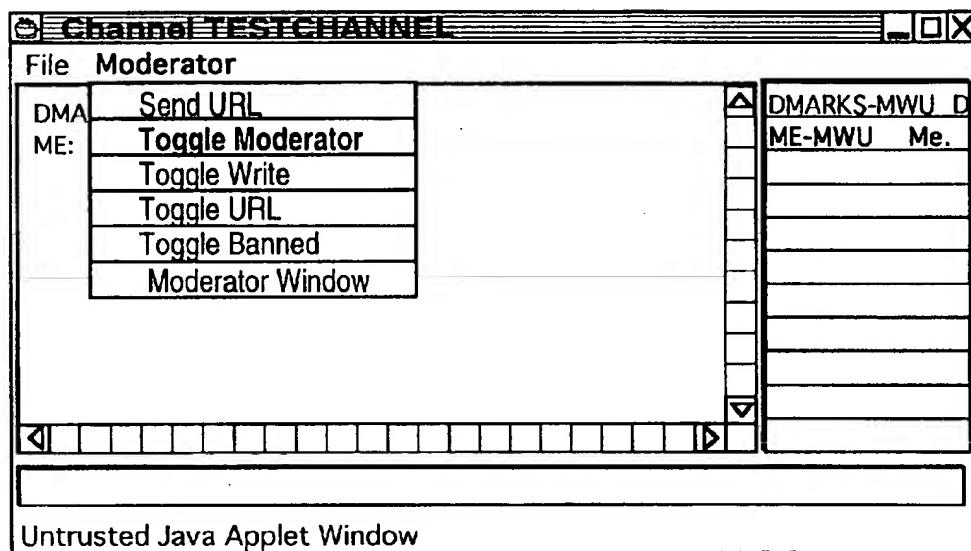


FIG. 14



**FIG. 15****FIG. 16**

**FIG. 17**



**FIG. 18**

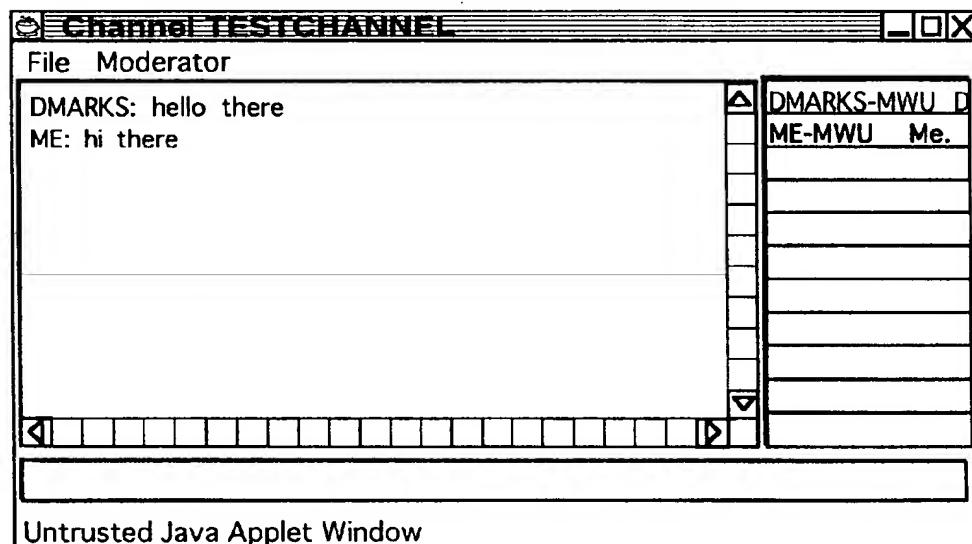


FIG. 19

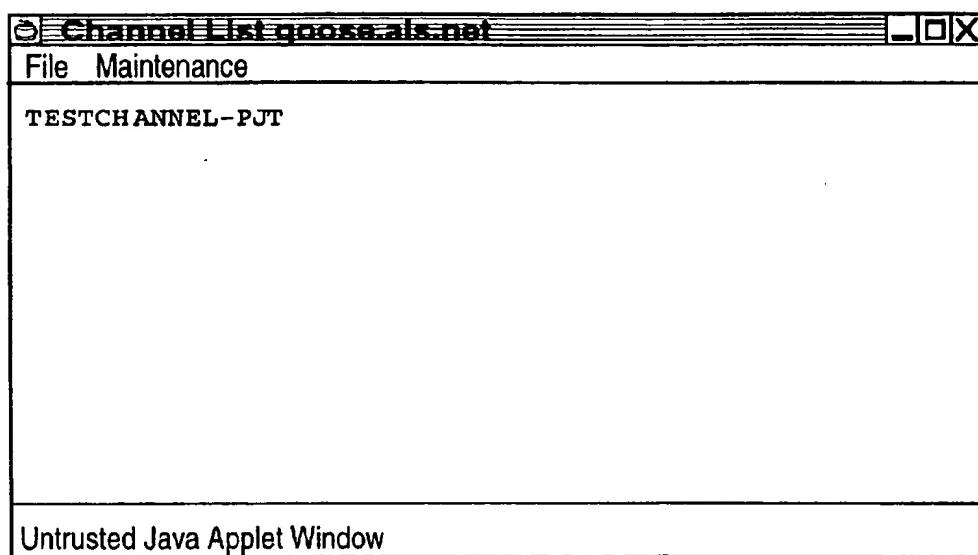
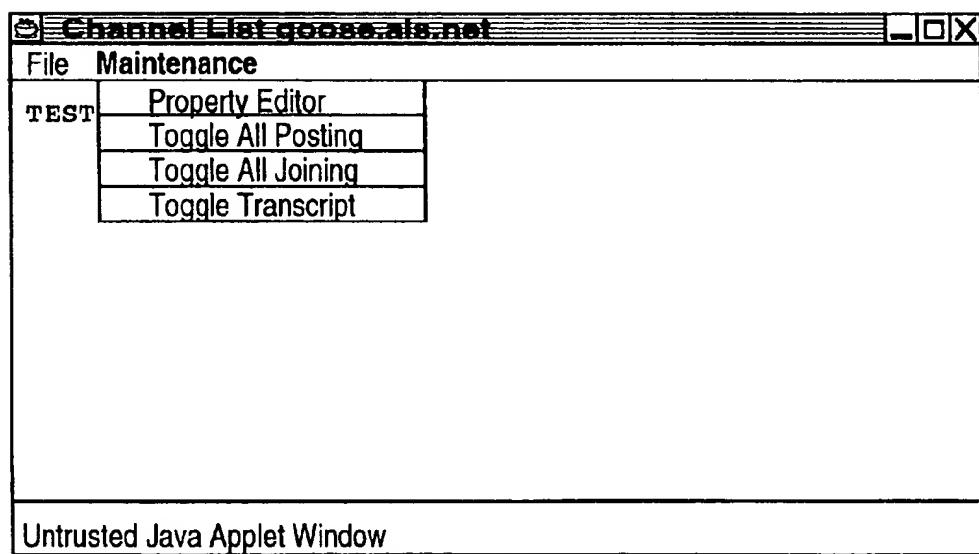


FIG. 20



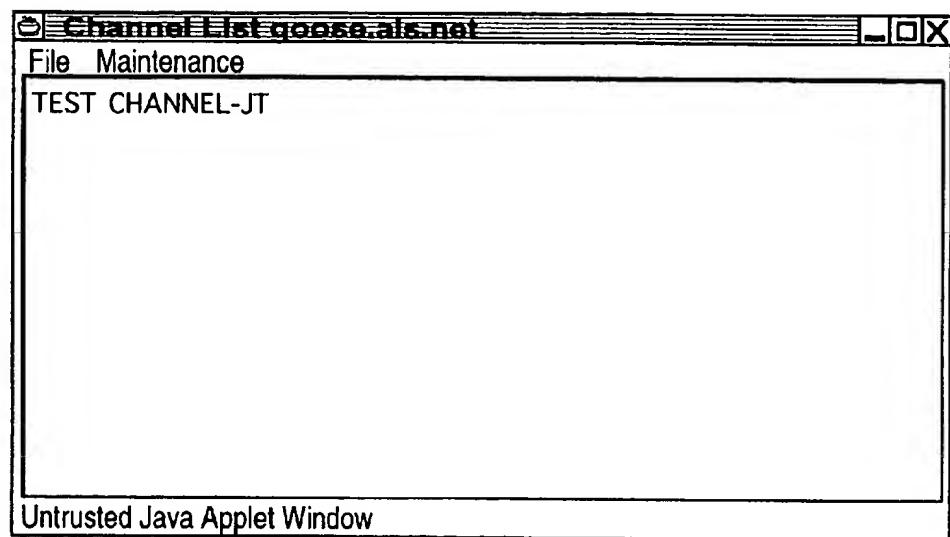
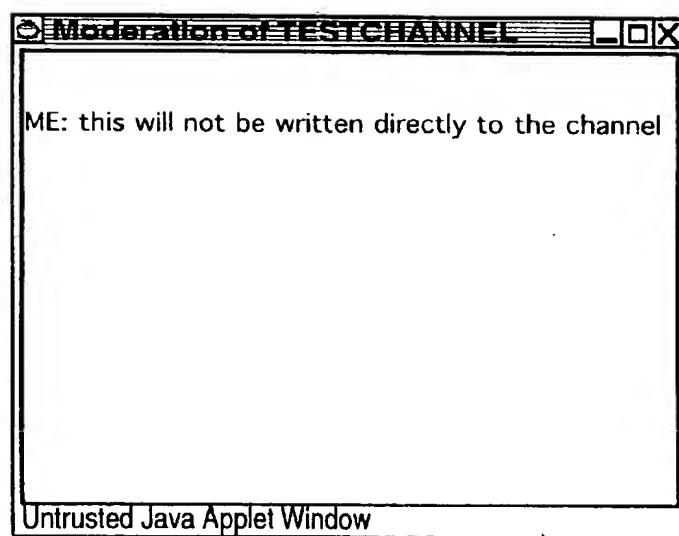
**FIG. 21****FIG. 22**

FIG. 23

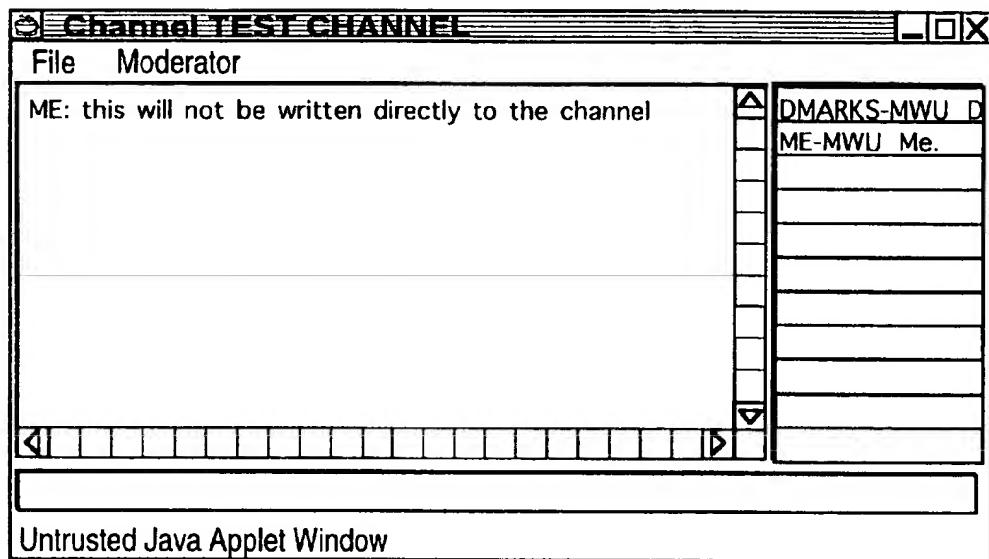


FIG. 24

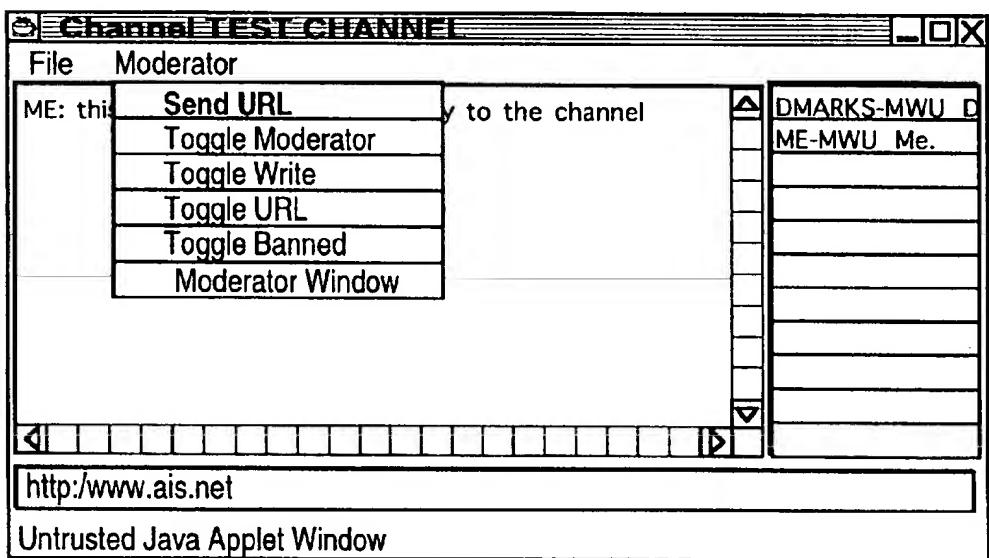


FIG. 25

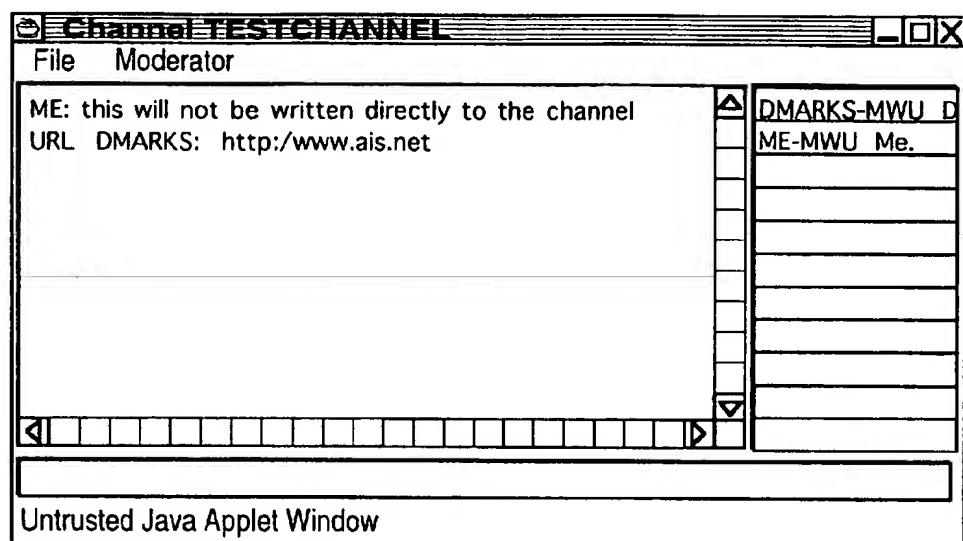
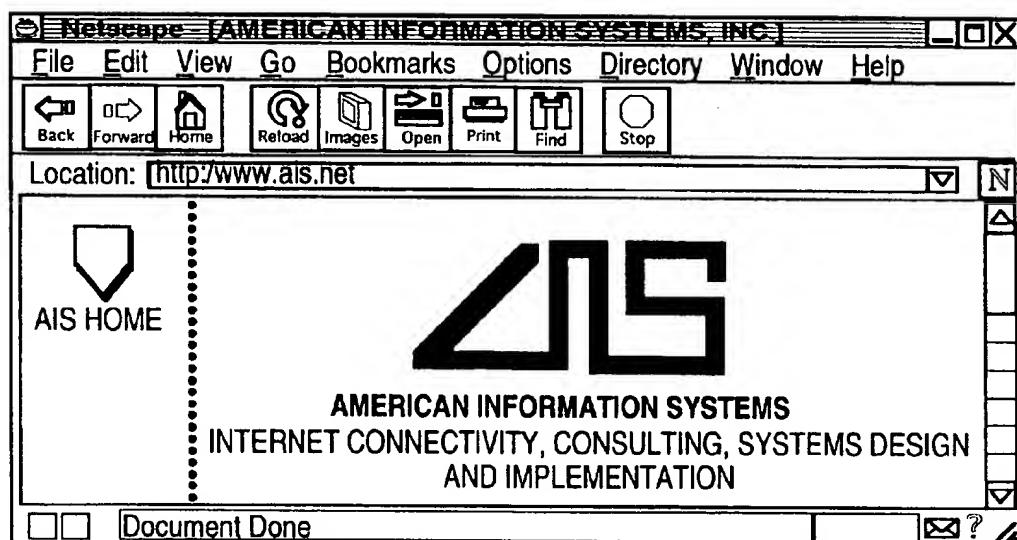


FIG. 26



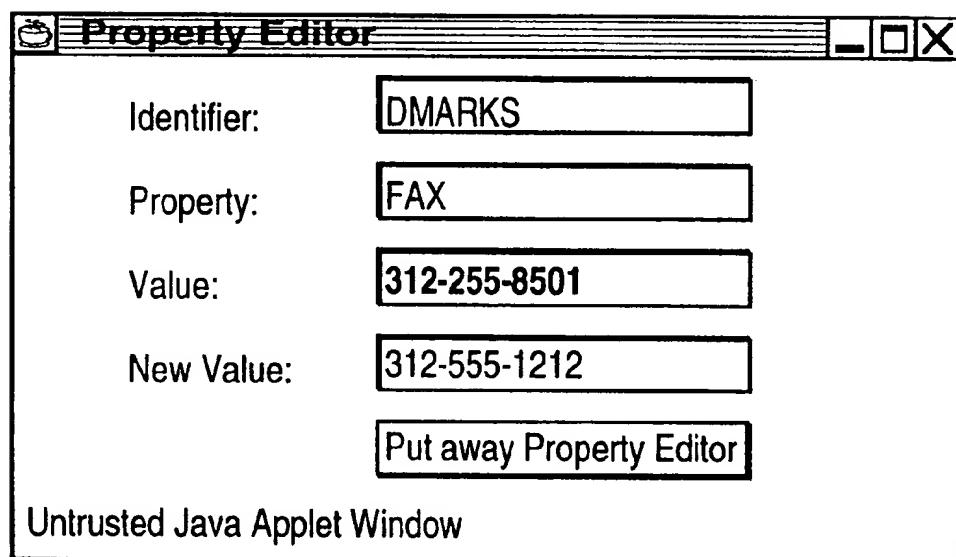
**FIG. 27**

FIG. 28

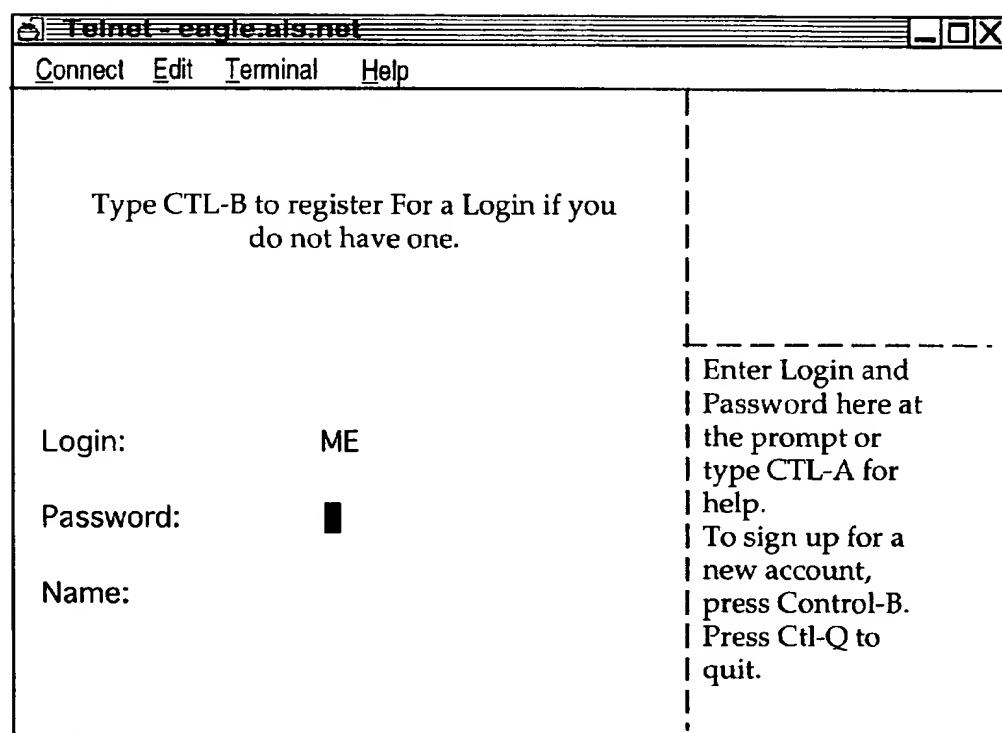


FIG. 29

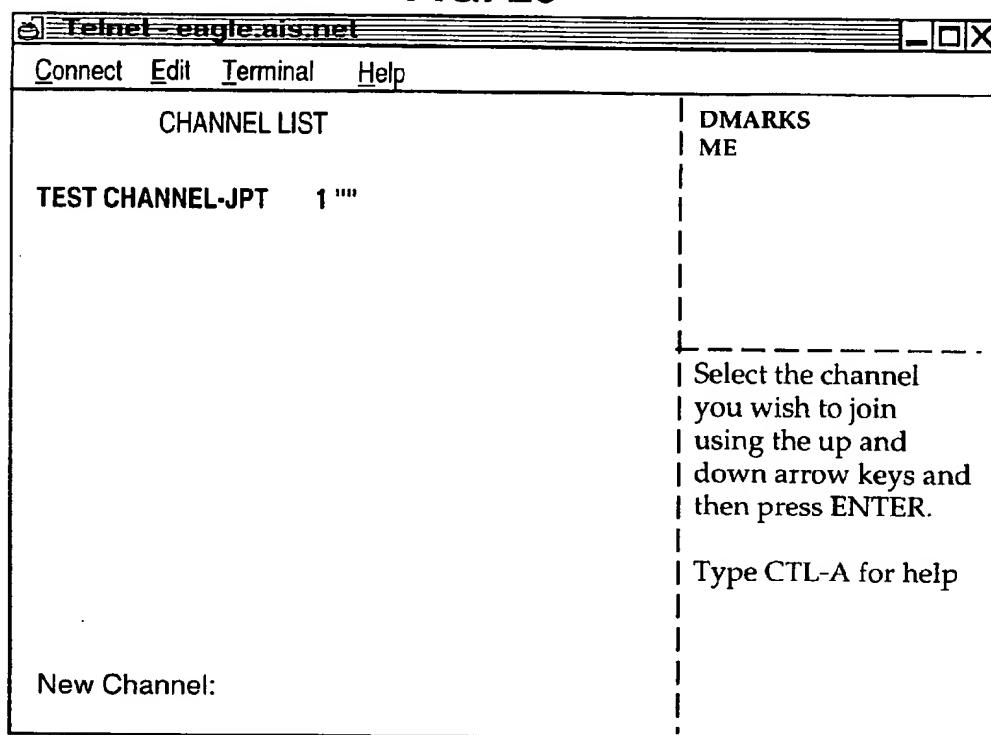


FIG. 30

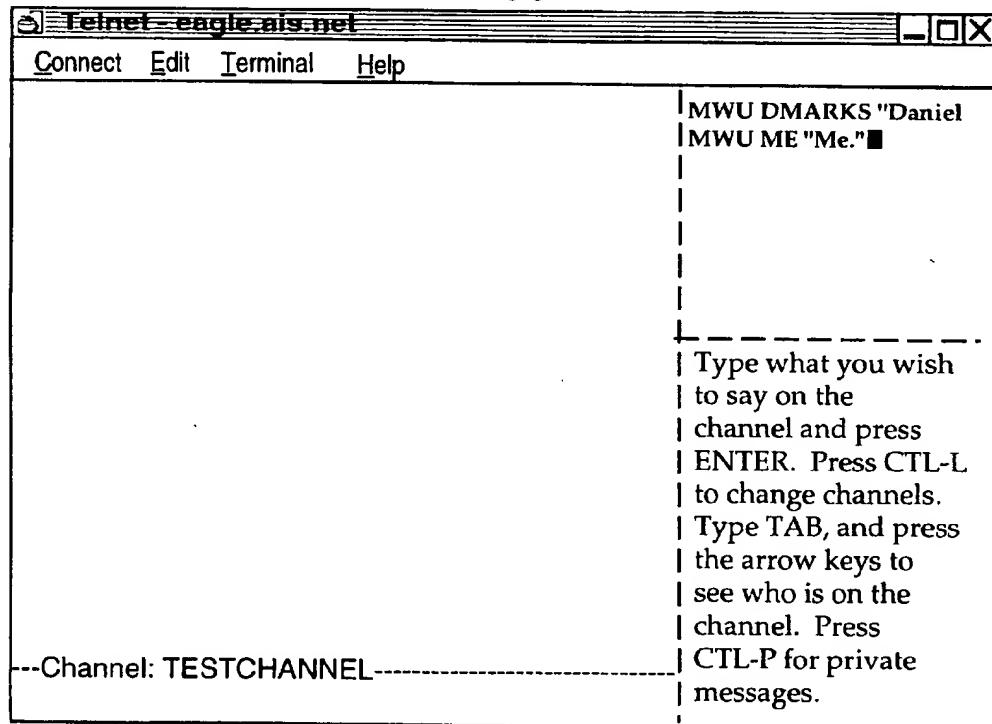


FIG. 31

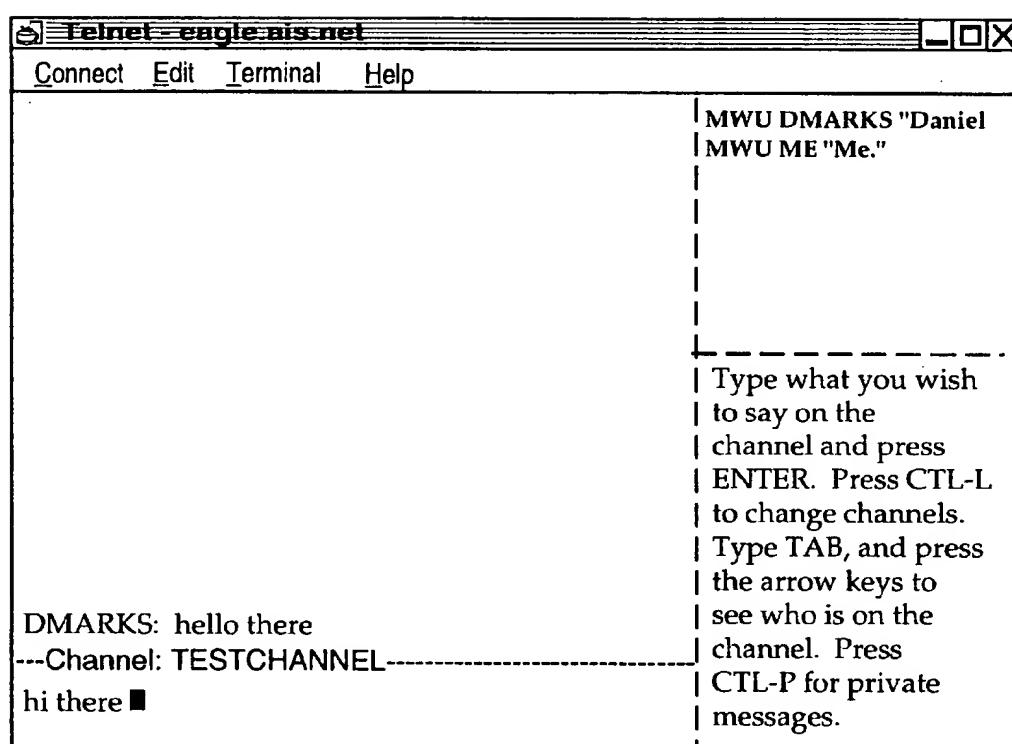


FIG. 32

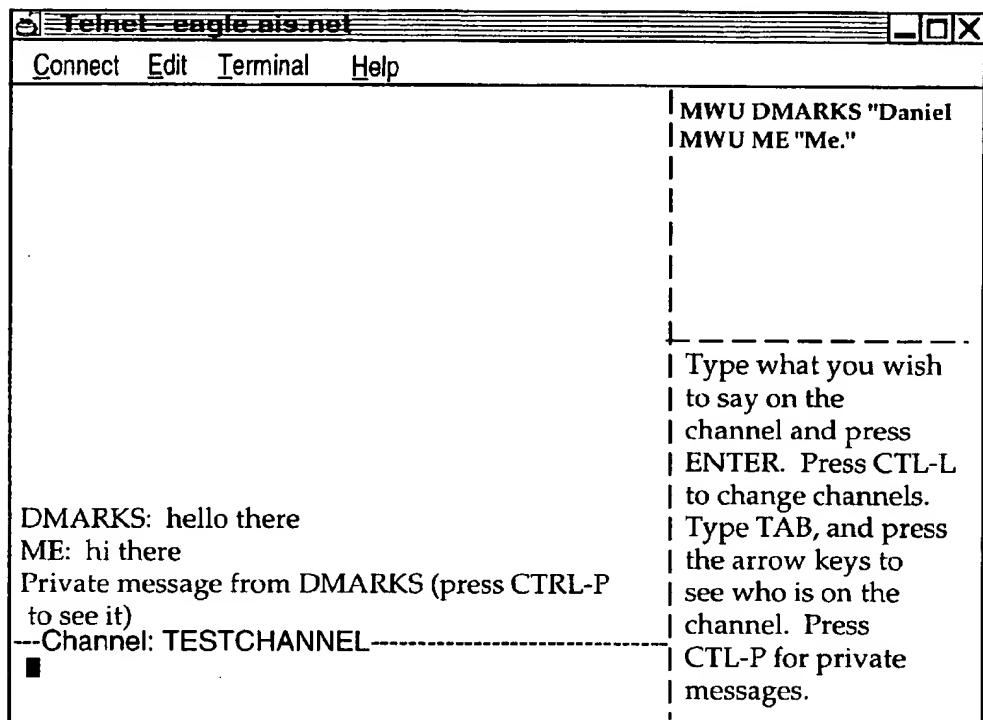


FIG. 33

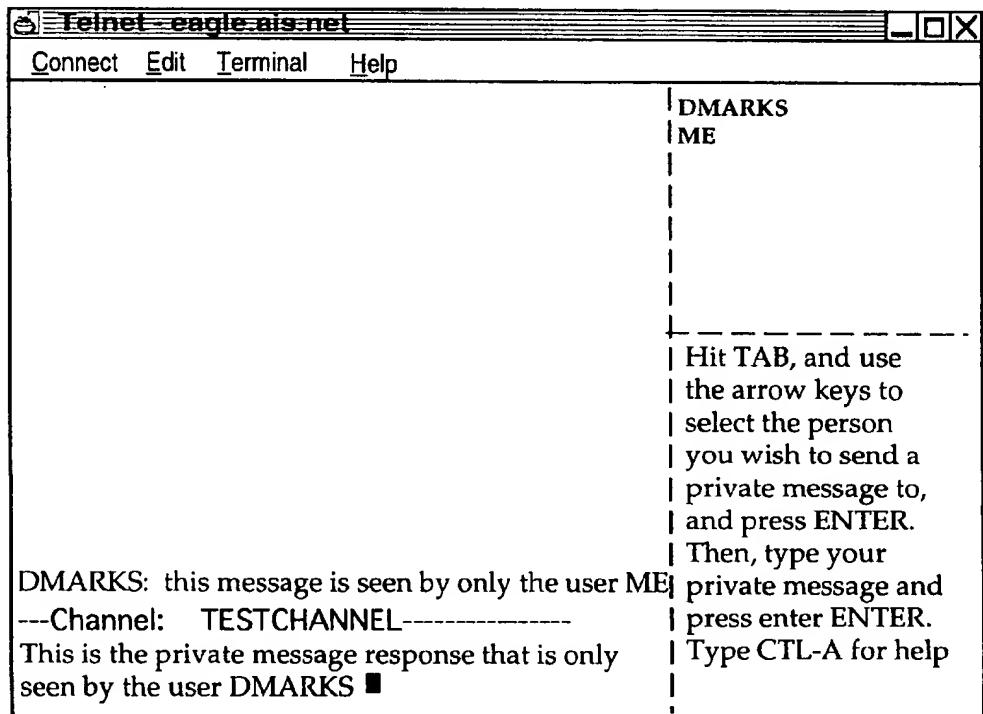
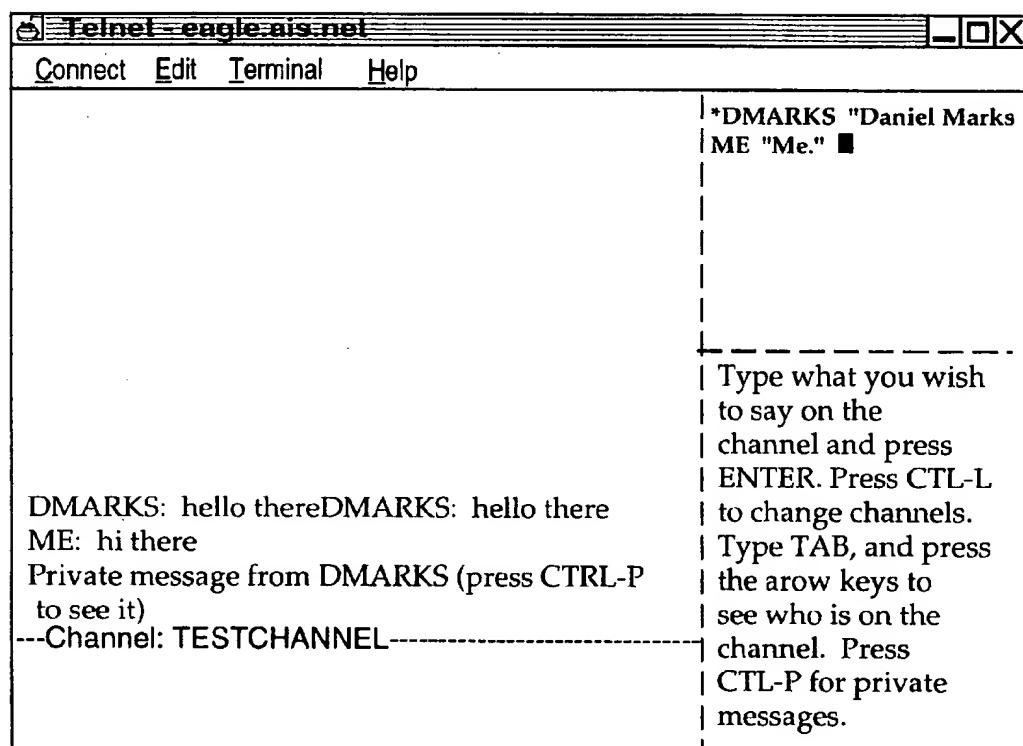


FIG. 34



## GROUP COMMUNICATIONS MULTIPLEXING SYSTEM

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### I. FIELD OF INVENTION

This invention is directed to an apparatus, a manufacture, and methods for making and using the same, in a field of digital electrical computer systems. More particularly, the present invention is directed to a digital electrical computer system involving a plurality of participant computers linked by a network to at least one of a plurality of participant computers, the participant computers operating in conjunction with the controller computer to handle multiplexing operations for communications involving groups of some of the participant computers.

### II. BACKGROUND OF THE INVENTION

Multiplexing group communications among computers ranges from very simple to very complex communications systems. At a simple level, group communications among computers involves electronic mail sent in a one way transmission to all those in a group or subgroup using, say, a local area network. Arbitrating which computers receive electronic mail is a rather well understood undertaking.

On a more complex level, corporations may link remote offices to have a conference by computer. A central computer can control the multiplexing of what appears as an electronic equivalent to a discussion involving many individuals.

Even more complex is linking of computers to communicate in what has become known as a "chat room." Chat room communications can be mere text, such as that offered locally on a file server, or can involve graphics and certain multimedia capability, as exemplified by such Internet service providers as America On Line. Multiplexing in multimedia is more complex for this electronic environment.

On the Internet, "chat room" communications analogous to America On Line have not been developed, at least in part because Internet was structured for one-way communications analogous to electronic mail, rather than for real time group chat room communications. Further, unlike the an Internet service provider, which has control over both the hardware platform and the computer program running on the platform to create the "chat room", there is no particular control over the platform that would be encountered on the Internet. Therefore, development of multiplexing technology for such an environment has been minimal.

Even with an emergence of the World Wide Web, which does have certain graphical multimedia capability, sophisticated chat room communication multiplexing has been the domain of the Internet service providers. Users therefore have a choice between the limited audience of a particular Internet Service provider or the limited chat capability of the Internet.

### III. SUMMARY OF THE INVENTION

It is an object of the present invention to overcome such limitations of the prior art and to advance and improve the technology of group computer multiplexing to enable better computerized group communications.

It is another object of the present invention to provide a computerized human communication arbitrating and distributing system.

It is yet another object of the present invention to provide a group communication multiplexing system involving a controller digital computer linked to a plurality of participant computers to organize communications by groups of the participant computers.

It is still another object of the present invention to link the controller computer and the plurality of computers with respective software coordinated to arbitrate multiplexing activities.

It is still a further object of the present invention to provide a chat capability suitable for handling graphical, textual, and multimedia information in a platform independent manner.

These and other objects and utilities of the invention, which apparent from the discussion herein, are addressed by a computerized human communication arbitrating and distributing system. The system includes a controller digital electrical computer and a plurality of participant digital computers, each of the participant computers including an input device for receiving human-input information and an output device for presenting information to a user having a user identity. A connection such as the Internet links the controller computer with each of the participant computers.

Controller software runs on the controller computer, programming the controller computer to arbitrate in accordance with predefined rules including said user identity, which ones of the participant computers can interact in one of a plurality of groups communicating through the controller computer and to distribute real time data to the respective ones of the groups.

Participant software runs on each of the participant computers to program each of the participant computers to operate a user interface. The user interface permits one of the users to send and/or receive a multimedia information message to the controller computer, which arbitrates which of the participant computers receives the multimedia information message. The controller computer also conveys the multimedia information message to the selected participant computers to present the multimedia information to the respective user.

Therefore, for a computer system involving a plurality of programmed participant computers running the participant computer program can interact through a programmed controller computer with the controller computer multiplexing the communications for groups formed from the plurality, as well as arbitrating communications behavior.

### IV. BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a depiction of hardware suitable for performing the present invention;

FIG. 2 is a communications overview of the present invention.

FIG. 3 is a data and communications dependency diagram for the controller group channel structure of the present invention.

FIG. 4 is a flow chart of the central controller loop communications for the controller computer.

FIG. 5 is a client channel data structure and information flow diagram of the present invention.

FIG. 6 is a participant software out-of-band multimedia information flow diagram of the present invention.

FIG. 7 is an illustration of a login/password screen of the present invention.

FIG. 8 is an illustration of a confirmation screen of the present invention.

FIG. 9 is an illustration of a channel list area screen of the present invention.

FIG. 10 is an illustration of a New Channel option 5 pull-down menu screen of the present invention.

FIG. 11 is an illustration of a member on a new channel screen of the present invention.

FIG. 12 is an illustration of a second member on the new channel screen of the present invention. 10

FIG. 13 is an illustration of a communication on the new channel screen of the present invention.

FIG. 14 is an illustration of a private message window on the new channel screen of the present invention.

FIG. 15 is an illustration of a private message displayed 15 on the private message window on the new channel screen of the present invention.

FIG. 16 is a further illustration of the private message on the private message window on new channel screen of the present invention. 20

FIG. 17 is an illustration of an attribute revocation on the new channel screen of the present invention.

FIG. 18 is a further illustration of the new channel screen of the present invention.

FIG. 19 is an illustration of the channel list window screen 25 of the present invention.

FIG. 20 is an illustration of the toggle posting option on a screen of the present invention.

FIG. 21 is an illustration of a moderated version of the new channel screen of the present invention. 30

FIG. 22 is an illustration of a communication on a moderation window screen of the present invention.

FIG. 23 is an illustration of the communication passed on to the moderated version of the new channel screen of the present invention. 35

FIG. 24 is an illustration of a communication, for sending a graphical multimedia message, on to the moderated version of the new channel screen of the present invention.

FIG. 25 is an illustration, showing the name of the URL, on a moderated version of the new channel screen of the 40 present invention.

FIG. 26 is an illustration of data associated with the graphical multimedia message on a moderated version of the new channel screen of the present invention.

FIG. 27 is an illustration of a property editor, suitable for a dialog to change tokens, on a screen of the present invention. 45

FIG. 28 is an illustration of a text-based interface login/password screen of the present invention.

FIG. 29 is an illustration of a text-based interface group screen of the present invention.

FIG. 30 is another illustration of a text-based interface group screen of the present invention.

FIG. 31 is another illustration of a text-based interface group screen of the present invention.

FIG. 32 is an illustration of a text-based interface private message screen of the present invention.

FIG. 33 is another illustration of a text-based interface private message screen of the present invention.

FIG. 34 is another illustration of a text-based interface group with moderator screen of the present invention.

## V. DETAILED DESCRIPTION OF THE DRAWINGS

In providing a detailed description of a preferred embodiment of the present invention, reference is made to an appendix hereto, including the following items.

|                   |
|-------------------|
| Appendix Contents |
| ALLUSER C         |
| ALLUSER H         |
| CHANNEL C         |
| CHANNEL H         |
| CHANNEL HLP       |
| CLIST C           |
| CLIST H           |
| CLIST HLP         |
| EDITUSER C        |
| EDITUSER H        |
| ENTRYFRM C        |
| ENTRYFRM H        |
| ENTRYFRM HLP      |
| HELP C            |
| HELP H            |
| HELPSCR C         |
| HELPSCR H         |
| LINEEDIT C        |
| LINEEDIT H        |
| LIST C            |
| LIST H            |
| LOGIN HLP         |
| MAIN C            |
| MAKEFILE          |
| MESSAGE C         |
| MESSAGE H         |
| MODERAT HLP       |
| PRIVATE C         |
| PRIVATE H         |
| PRIVATE HLP       |
| SOCKIO C          |
| SOCKIO H          |
| STR C             |
| STR H             |
| UCCLIENT          |
| USER C            |
| USER H            |
| WINDOW C          |
| WINDOW H          |

Note that the appendix includes code for two different embodiments: a Telnet embodiment and a JAVA embodiment. Documentation and error messages, help files, log files, are also included in the appendix. While platform controlled embodiments are within the scope of the invention, it is particularly advantageous to have a platform independent embodiment, i.e., an embodiment that is byte code compiled.

Referring now to FIG. 1, the overall functioning of a computerized human communication arbitrating and distributing System 1 of the present invention is shown with odd numbers designating hardware or programmed hardware, and even numbers designating computer program logic and data flow. The System 1 includes a digital Controller Computer 3, such as an Internet service provider-type computer. The Controller Computer 3 is operating with an operating system.

System 1 also includes a plurality of digital Participant Computers 5, each of which may be an IBM-compatible personal computer with a processor and a DOS operating system. Each of the Participant Computers 5 includes an Input Device 7 for receiving human-input information from a respective human user. The Input Device 7 can be, for example, a keyboard, mouse or the like. Each of the Participant Computers 5 also includes an Output Device 9 for presenting information to the respective user. The Output Device 9 can be a monitor, printer (such as a dot-matrix or

laser printer), or preferably both are used. Each of the Participant Computers 5 also includes a Memory 11, such as a disk storage means.

The System 1 includes a Connection 13 located between, so as to link, the Controller Computer 3 with each of the Participant Computers 5. The Connection 13 can be an Internet or more particularly, a World Wide Web connection.

The Controller Computer 3 is running and under the control of Controller Software 2, which directs the Controller Computer 3 to arbitrate in accordance with predefined rules including a user identity, which ones of the Participant Computers 5 can interact in one of a plurality of groups through the Controller Computer 3 and to distribute real time data to the respective ones of the groups.

The Participant Computers 5 are each running and under the control of Participant Software 4, which directs each of the Participant Computers 5 to handle a user Interface 6 permitting one said user to send a multimedia information Message 8 to the Controller Computer 3, which arbitrates which of the Participant Computers 5 receives the multimedia information Message 8 and which conveys the multimedia information Message 8 to the selected participant computers 5 to present the multimedia information Message 8 to the respective user.

The present invention comprehends communicating all electrically communicable multimedia information as Message 8, by such means as pointers, for example, URLs. URLs can point to pre-stored audio and video communications, which the Controller Computer 3 can fetch and communicate to the Participant Computers 5.

Turning now to FIG. 2, there is shown a communications overview of the present invention. Beginning with the Controller Computer Software 2, reference is made to Block 10, which illustrates demultiplexing and multiplexing operations carried out by message type on API messages of all types. Block 10 links to Block 12, which is illustrative of channel A. . . . Block 10 also links to Block 14, which illustrates handling private message A. Block 10 also links to Block 16, illustrative of handling out-of-band media. Block 10 additionally links to Block 18, which illustrates asynchronous status messages.

Multiple connections between the controller computer 3 and a plurality of participant computers 5 permit communication implemented via the interplay of controller software 2 and participant software 4. With particular regard to the participant software 4 illustrated in FIG. 2, Block 20 is illustrative of demultiplexing and multiplexing operations carried out by message type on API messages of all types. Block 20 links to Block 22, which is illustrative of channel A. . . . Block 20 also links to Block 24, which illustrates handling private message A. Block 20 also links to Block 26, illustrative of handling out-of-band media via Block 28, which is illustrative of a Web browser or auxiliary computer program. Block 20 also links to Block 30, which illustrates asynchronous status message handling via Block 32, illustrative of user interface objects windows and screens.

De/multiplexing via API provides a "virtual connection" between Channel, Private Message, and Multimedia objects in the controller computer 3 and each participant computer 5. An alternate architecture is to allow for a separate connection between each object so that multiplexing/demultiplexing is not necessary and each object handles its own connection. This would influence system performance, however.

Turning now to FIG. 3, a data and communications dependency diagram controller group channel structure is illustrated. Beginning from what is designated as a portion

of Block 10 the logic flows to Block 34 to consider JOIN, LEAVE, STATUS, SETCHAN API instructions. Block 34 examines member list maintenance instructions, accessing Block 36 to check permissions, list users, and change attributes. Note the exploded window 38 shows a display of member information including a user's name, personal information, and attributes/properties/permissions (operations involving the subsequently discussed tokens), i.e., stored per channel attributes under each member. In any case, confirmation or denial of access is communicated via Block 40 for multiplexing return of status messages to a target object.

From the portion of Block 10, the logic flows to Block 42 for MESSAGE and MODMSG API instructions. Block 42 tests which of the two instructions were received, and for MODMSG, the logic flows to Block 44, which tests whether the user is a moderator. If the user is not a moderator, the logic flows to Block 46, which sends a denial message through Block 40. If, however, the in Block 44 the user is a moderator, the logic flows to Block 48 for a repeat to all list members who are permitted to see the message, via Block 40.

Returning to Block 42, if MESSAGE is detected, the logic flows to Block 50, which tests whether a user has post permission. If the user has post permission, the logic flows to Block 48, etc. If the user does not have post permission, the logic flows to Block 52 to forward the message to moderators for approval, via Block 40.

Additionally, the logic flows from Block 10 to Block 54 for a URL API instruction. Block 54 tests whether the user has graphical multimedia communication privileges, and if not, the logic flows via Block 56, which sends a denial message via Block 40. Otherwise, if the user does have graphical multimedia communications privileges in Block 54, Block 58 sends graphical multimedia information to all approved users via Block 40.

Turning now to FIG. 4, central controller loop communications is illustrated. For the data on central poll point 58 (see Appendix POLL\_POINT), a "do" loop begins at Block 60 for each connection. Block 62 tests whether bytes are available on the data stream. If they are, the bytes are added to user space FIFO per connection at Block 64, leading to Block 66, which tests whether there are any more connections. Note that in FIG. 4, if there are no more bytes available in Block 62, the logic skips to Block 66, and if Block 66 is not finished with all connections, the loop returns to Block 62. When all connections have been completed in Block 62, the logic flows to Block 68, which looks for an available complete data instruction for any connection by extracting packets byte-wise from the FIFO. Thereafter, Block 70 tests whether there is a complete response available from the participant computer. If the response is complete, the logic flows to Block 72 which, using a command type, demultiplexes into an appropriate object (output FIFOs may be filled here for any connection). The logic from Block 72 joins the "no" branch from Block 70 at Block 74, which enables unblocking for writing connections for only connections with data available to write, looping back to Block 58.

FIG. 5 shows a client channel data structure and information flow diagram. From a message that is demultiplexed by message type, there are six possibilities: ERROR MESSAGE, MESSAGE, STATUS, JOINCHANNEL, LEAVECHANNEL, and MODMSG. ERROR MESSAGE is communicated to Block 76, where the error message is displayed to the transcript in the transcript area of Block 80. MESSAGE is communicated to Block 78 where the mes-

sage is immediately added to the transcript in transcript area 78. STATUS is communicated to Block 82 to update user data structure; JOINCHANNEL is communicated to Block 84 to remove a user from the member list and display the change; and LEAVECHANNEL is communicated to Block 86. From Block 82, Block 84, and Block 88, the logic flows to Block 88, which includes a member list, a member identifier, known attributes/permissions/properties, and personal information. From Block 88, the logic proceeds to Block 90, a member list area, and on to Block 92 to compose a request to change a member attribute. This "SETCHAN" request is then communicated to Block 94, which is the multiplexer leading to the controller computer connection.

MODMSG is communicated to Block 96, which sends the message to the moderation area of Block 98, and then to Block 100 to resubmit a member message as approved, thereby conveying a MODMSG request to Block 94.

Note that a response is prepared in the response area of Block 102. If the response is a standard message, it is conveyed to Block 104 to compose the response into a controller message, thereby sending a MESSAGE request to box 94. If, however, the message is a graphical information submission, the logic flows from Block 102 to Block 106 to compose the graphical information submission into a controller message, thereby sending a URL request to Block 94.

FIG. 6 is a participant software out-of-band multimedia information flow diagram, which begins with Block 26, the multimedia type patch point. Block 26 leads to Block 102, which tests whether there is an internally handleable multimedia type. If not, Block 104 looks up a suitable agent for data type presentation, which leads to Block 106, which tests whether an agent was found. If not, Block 108 reports location of data to the user for future referencing. If the agent is found in Block 106, the logic flows to Block 110, which invokes the agent with a data reference to present the data.

If the multimedia type is internally handleable from Block 102, the logic flows to Block 112, which tests whether this is a member associated image. If it is a member associated image, Block 114 displays the image next to member identity information, and if it is not, the logic flows to Block 116, which tests if this is a member public data reference (e.g., a URL). If a URL is detected at Block 116, Block 118 invokes an external data type viewer only on demand of the operator of the participant software, and otherwise Block 120 stores the reference for future use by the operator of the participant software, or treats the reference as an externally handled multimedia type (at the user's option).

With further regard to the manner of interaction between the controller computer 3 and the participant computers 5, and their respective computer programs 2 and 4, includes a moderation capability that is controlled, or arbitrated, pursuant to system 1 recognizing user identity. Note that using the user identity for moderation purposes is a use additional to the use of the user identity for security purposes.

One embodiment of the present invention is to bring chat capability to the internet and World Wide Web. However, another embodiment involves non-internet relay chat. In either embodiment, System 1 is state driven such that synchronous and asynchronous messages can be communicated. For an asynchronous notification, each message is sent through the system 1 (API), which updates the information on the output device of the participant computers 5. For a synchronous notification, a participant computer 5 must interrogate the system 1 for a message.

With regard to the arbitrating of the controller computer 3 is directed by the controller computer program 2 to use "identity tokens", which are pieces of information associ-

ated with user identity. The pieces of information are stored in memory 4 in a control computer database, along with personal information about the user, such as the user's age. The control computer database serves as a repository of tokens for other programs to access, thereby affording information to otherwise independent computer systems. In the database, the storage of tokens can be by user, group, and content, and distribution controls can also be placed on the user's tokens as well as the database.

Each token is used to control the ability of a user to gain access to other tokens in a token hierarchy arbitration process. The arbitration also includes controlling a user's ability to moderate communications involving a group or subgroup of the participant computers 5. Once in a group, temporary tokens are assigned for priority to moderate/submoderate groups (a group is sometimes known as a channel in multiplexing terminology).

Accordingly, tokens are used by the controller computer 5 to control a user's group priority and moderation privileges, as well as controlling who joins the group, who leaves the group, and the visibility of members in the group. Visibility refers to whether a user is allowed to know another user is in the chat group.

Tokens are also used to permit a user's control of identity, and in priority contests between 2 users, for example, a challenge as to whether a first user can see a second user.

Censorship, which broadly encompasses control of what is said in a group, is also arbitrated by means of the tokens. Censorship can control of access to system 1 by identity of the user, which is associated with the user's tokens. By checking the tokens, a user's access can be controlled per group, as well as in giving group priority, moderation privileges, etc.

Censorship also can use the tokens for real time control of data (ascii, text, video, audio) from and to users, as well as control over multimedia URLs—quantity, type, and subject.

With regard to controlling communications in a group (which is in essence a collection of user identities), control extends to seeing messages, seeing the user, regulating the size of the communication, as well as the ability to see and write to a specific user. Control further extends to the ability to send multimedia messages.

Note that tokens for members in group can involve multiples formed in real time, say, within the span of a conversation. For example, for private communication, tokens are immediately formed to define a group of 2 users. Hierarchical groups within groups can also be formed, with each inheriting the properties of the group before it. Thus, a subgroup can include up to all members or more by adding any surplus to the former group.

With further regard to the controller computer 3, e.g., a server, information is controlled for distribution to the user interfaces at selected ones of the participant computers 5. The controller computer program, in one embodiment, can be a resident program interface (such as a JAVA application). There can be a token editor object (window/tear down, etc.) per group, private communication, user, channel listings, user listings, etc. Each can link up in a token hierarchy for arbitration control.

The controller computer 5, by means of the controller computer program 2, keeps track of states and asynchronous messages as well as generating a synchronous message as a user logs in or interrogates system 1.

With regard to multimedia information messages 8, such messages are of independent data types, e.g., audio/video data types. The content of the message (e.g., a URL) permits the System 1 to automatically determine the handling of the

message: either the Controller Computer 3 passes the content of Message 8 directly, or the Controller Computer 3 determines from the Message 8 how to find the content, say via Netscape. Accordingly, Message 8 can communicate video and sound (or other multimedia, e.g., a URL) to users, subject only to the server arbitration controls over what can be sent.

Turning now to an illustration of using the invention, the session starts with verifying the user's identity (at FIG. 7). The login/password screen is shown, and the user enters his/her assigned login/password combination and clicks the "Login To Chat" button. If the password was entered correctly, a confirmation box appears on the screen.

Then the channel list area is shown at FIG. 8. The Channel List area is a window which shows a list of all of the groups currently on the server in active communication. Because no one is yet connected in this example, there are no groups currently available on the screen.

To create a new group, the "New Channel" option is selected from a pull-down menu (at FIG. 9). The name of the channel is entered by the input device 7.

If the user has permission (this one does), a new channel is created for the group (at FIG. 10). The window that displays the channel area has three regions: the bottom region, where responses are entered; the largest region, where a transcript of the communication is followed; and the rightmost region, which lists the group's current members. This list is continuously updated with asynchronously generated status messages received immediately when a new member joins the group. Only "DMARKS" is currently in this group. The "MWU" is the properties currently associated with DMARKS—the ability to moderate, write to the channel, and send multimedia messages.

A new member has joined the channel, and the member list status area is updated right away (at FIG. 11). This new member has a login of "ME."

The user DMARKS now types "hello there" into the response area and presses RETURN (at FIG. 12). This message is passed to the controller computer 5, which sends the message to all channel members, i.e., those using participant computers 5, including DMARKS.

The user ME now sends a message to the controller: "hi there" (at FIG. 13). This message is also sent to all members by the controller computer 5. Now user DMARKS clicks (using input device 7, a mouse) on the name of the user "ME" in the member list window. The participant software 4 will now create a private message window, so that the users ME and DMARKS can exchange private messages. Private messages are only sent to the intended recipient by the controller, and no one else.

A private message window appears in response to DMARKS's request to open private communications with ME (at FIG. 14). Now DMARKS types a message into the private message window's response area to ME: "this message is seen only by the user ME." When complete, the participant software 4 will forward this message to the controller computer 3.

In response, the user ME has entered "This is the private message response that is only seen by the user DMARKS," which has been forwarded to user DMARKS (at FIG. 15). This message is displayed immediately on DMARKS's window.

DMARKS now returns to the channel window for the group "TESTCHANNEL" (at FIG. 16). To modify the permission attributes associated with user ME on the channel TEST CHANNEL, DMARKS (who is a moderator of the channel), clicks on the user ME in the member list to

select ME, pulls down the Moderator menu, and selects "Toggle Moderator." This removes the moderator privileges from ME.

As a result of the attribute revocation, the "M" has disappeared from next to ME's name in the member list (at FIG. 17), indicating that the property is no longer associated with the user ME.

Now DMARKS returns to the Channel List window (at FIG. 18). DMARKS wishes to fully moderate the contents of the channel TESTCHANNEL, censoring all unwanted communications to the channel. DMARKS returns to the channel list, and selects the channel TESTCHANNEL by clicking on its name in the channel list.

Now DMARKS selects the "Toggle All Posting" option in the Maintenance pull-down menu (at FIG. 19). This will turn off the channel property "posting," (or sending communications to the channel without moderator approval) which will be indicated by the removal of the letter "P" from next to the name TESTCHANNEL (at FIG. 20).

Now the letter "P" is removed from after the name TESTCHANNEL in the Channel List window (at FIG. 21), indicating that this channel is now moderated and will only have free posting ability by designated members.

Now, type user ME (who is also on channel TESTCHANNEL) wishes to send communications: "this will not be written directly to the channel" (at FIG. 22). The controller, instead of sending it immediately to the channel to be seen by all members, will instead forward the message to the moderators for approval. The moderator, DMARKS, will then see the message on the Moderation Window, which provides a preview of any messages to be sent. To approve a message for general viewing, DMARKS now clicks on the message.

Now that DMARKS has clicked directly on the message, it is displayed inside the group's Channel window for all members to see (at FIG. 23).

DMARKS now wishes to send a graphical multimedia message. This implementation sends graphical multimedia images by allowing a channel member to specify an Internet URL of a graphical multimedia resource to be presented to the group members. In this example, DMARKS wishes to send the URL "http://www.ais.net" (corresponding to the World Wide Web home page of American Information Systems, Inc.) to the channel members. DMARKS enters the URL into the response window, and selects "Send URL" from the Moderator pull-down menu (at FIG. 24).

The controller computer 5 now passes the URL to the channel members. This participant software 4 performs two actions in response to the graphical multimedia display request. The first is to put the name of the URL onto the transcript of the group's channel, so that it can be read by group members. The second response is to have the participant software show the data associated with the graphical multimedia message in a human interpretable way (at FIG. 25). To do this, the participant software 6 either uses built in rules to decide how the graphical multimedia data is to be presented, or locates another program suitable to present the data. In this case, the software 6 is utilizing Netscape Navigator™, a program for displaying graphical multimedia documents specified by a URL (at FIG. 26). Inside the Navigator window, the graphical multimedia content, the home page of AIS, is shown.

Finally, DMARKS wishes to manually modify the attribute tokens associated with the user (at FIG. 27). The user invokes the Property Editor dialog, which allows the user to view and change the tokens associated with a user. A property of a given user is determined by the Identifier and

Property names. An old value of the property is shown, and a token value can be changed in the "New Value" field. With this property editor, a user with sufficient permissions (tokens) can change any of the tokens or security parameters of any user, or a user's ability to change security parameters can be restricted.

To start with an alternate embodiment using a text-based interface, a user is presented by the login/password screen (at FIG. 28). This screen is where a user enters the information that proves his/her identity. The user must now enter his/her login and password to identify themselves.

After the user has been identified by the controller the Channel List screen appears (at FIG. 29). The names of channels and their associated properties are shown on this screen. By using the arrow keys and highlighting the desired channel, ME may enter any publicly joinable group. Currently, there is only one group TESTCHANNEL, which ME will join.

Now the screen for the channel TESTCHANNEL appears (at FIG. 29). The screen is split into four regions. The bottom left region is the response line, where messages users wish to enter appear. The upper left region is the transcript area where the communications of the group's channel appear as they occur. The upper right region is the Member List region, where a continuously updated list of members' names appear, with their attributes.

A message appears in the transcript area. The controller has forwarded a message to the group from DMARKS, "hello there" (at FIG. 31), which is seen by all members of the group, including ME. Now ME will respond, by entering "hi there" into the response area.

When ME is finished entering his response, the participant software forwards the response to the controller, which sends it to the members of the channel. In the transcript area, the participant software notifies the user that it has received a private message from DMARKS, which is waiting inside the private message screen. To see the private message, ME presses the private message screen hot key.

A private message screen appears (at FIG. 32), and the private message from DMARKS is at the bottom of the transcript area. Now to reply, ME types his response into the response area.

Now ME will return to the screen for the channel TESTCHANNEL. The member list area has changed because DMARKS has revoked ME's moderator permission. ME is no longer permitted to see the permissions of other users, so this information has been removed from his display (at FIG. 33). The only information he can see now is who is moderator (at FIG. 34). A "\*" next to the identifier of a member of the group indicates the member is a moderator of the group. ME is no longer a moderator, and therefore a "\*" does not appear the identifier ME.

To further exemplify the use of the present invention, the following is a transcript of communications produced in accordance herewith.

POWERQUALITY JOHN MUNG: unclear about meaning of "first contingency"

POWERQUALITY SAM: mike, that is correct on IEEE 519

POWERQUALITY SKLEIN: In assessing network security (against outage) the first contingencies are tested to see how the power system should be reconfigured to avoid getting a second contingency and cascading into an outage.

POWERQUALITY MSTEARS: These outages point out the need for reliability as part of the overall customer picture of PQ

POWERQUALITY BRIAN: Hi Jennifer, hit crt-p for private messages

POWERQUALITY SKLEIN: In simpler terms, a single point failure shouldn't crash the system.

POWERQUALITY SKLEIN: Are we all chatted out?

POWERQUALITY ANDYV: brian, johnmung has been banned!!! why?

POWERQUALITY BRIAN: no way, new subject

POWERQUALITY BRIAN: just a sec, andy

POWERQUALITY BRIAN: No banning on this channel, John is back on

POWERQUALITY TKEY: ieee 519 limits the harmonic current a customer can inject back into the pcc and limit the vthd the the utility provides at the PCC

POWERQUALITY JOHN MUNG: thanks guys, for unbanning me- i've been thrown out of better places than this!

POWERQUALITY BRIAN: New subject . . . now . . .

POWERQUALITY BRIAN: good one john . . . :)

POWERQUALITY MSTEARS: For critical facilities dual feeds or other backup capability need to be economically evaluated to keep the facility in operation

POWERQUALITY SAM: John, I remember that club very well

POWERQUALITY JOHN MUNG: question: please comment on frequency of complaints involving spikes, sags or harmonics

POWERQUALITY WARD: Problems caused by sags is the main complaint.

POWERQUALITY BRIAN: What subject does anyone want to see the next chat

POWERQUALITY WARD: Surges is probably next; harmonics really don't cause that many problems, although they are certainly there.

POWERQUALITY ANDYV: what is the solution ward?

POWERQUALITY TKEY: Agree they are the most frequent (sags) and the panel session on the cost of voltage sags at PES drew 110 people

POWERQUALITY SAM: harmonics tend to be an interior problem within a facility, rather than on the distribution system

POWERQUALITY WARD: The best solution is making the equipment less susceptible to sags. This requires working with the manufacturers.

POWERQUALITY ANDYV: won't that cost more

POWERQUALITY MSTEARS: The complaint of surges covers many things in the customers eyes sags have become a real problem because they are harder to resolve

POWERQUALITY GRAVELY: John-The latest EPRI results confirms the 90+% of the time SGS are the problem and short term ones.

POWERQUALITY WINDSONG: What is the topic for the 25??

POWERQUALITY WARD: Each problem can be dealt with as it occurs, but the time involved gets very expensive.

POWERQUALITY JOHN MUNG: making equipment less susceptible causes legal problems for manufacturers- as each improvement can be cited by complainant as example of malfeasance

POWERQUALITY WARD: AndyV: The cost to the manufacturer increases. The overall cost to everyone involved decreases.

POWERQUALITY TKEY: customer pays any way you cut it, if the eqpt is more immune customers pay only once instead of every time the process fails

POWERQUALITY BRIAN: The topic is regarding Power Quality

POWERQUALITY BRIAN: This chat is available for everyone 24 hours a day

POWERQUALITY ANDYV: ddorr>>will the manufacturer spend more to produce a better product

POWERQUALITY WARD: And as Tom says, the cost to the customer is far less.

POWERQUALITY BRIAN: This chat will be functioning 24 hrs/day

POWERQUALITY BRIAN: please use it

POWERQUALITY BRIAN: The next panel discussion is November 15th

POWERQUALITY WARD: Andy, that's where standards come in.

POWERQUALITY SKLEIN: Is the customer capable of resolving the fingerpointing among the manufacturers and utilities?

POWERQUALITY DDORR: Andy, only if the end users create a market for PQ compatible eqpt by demanding better products

POWERQUALITY MSTEARS: The manufacturers problems in including fixes is being competitive with some who doesn't provide the fix

POWERQUALITY ANDYV: how will we educate the general consumer?

POWERQUALITY GRAVELY: Is it possible to have a basic theme topic or some core questions for November 15th chat?

POWERQUALITY WARD: Stan, the customer cannot be expected to resolve the fingerpointing. The manufacturers and utilities need to work together.

POWERQUALITY ANDYV: about power quality and reliability?

POWERQUALITY SKLEIN: If electric power is going to be treated as a fungible commodity, there has to be a definition. Like, everyone knows what number 2 heating oil is.

POWERQUALITY SAM: Ideally a manufacturer would not be able to compete if they don't add the protective function in their products, but a lot more public education is required before we get to this point.

POWERQUALITY WARD: Andy, there are many ways to educate the customers, but they require a lot of contact between the utility and the customers. The Western Resources Power Technology Center in Wichita is doing it, just as an example.

POWERQUALITY DDORR: standard power vs premium power is one solution as is std qpt vs PQ compatible eqpt

POWERQUALITY SKLEIN: I want to buy number 2 electric power and to be able to check the nameplates of my appliances to be sure they can take it. Just like I buy regular gasoline.

POWERQUALITY MSTEARS: Sam—I agree, that is partly the utilities responsibility since we serve the customers

POWERQUALITY BBOYER: What differentiates number 2 from number 1?

POWERQUALITY SKLEIN: I used the analogy of number 2 heating oil. I don't know what number 1 heating oil is.

POWERQUALITY DDORR: Number two has cap switching and all the normal utility operational events while number one is much better

POWERQUALITY SKLEIN: Perhaps we can just say regular vs high test.

POWERQUALITY SAM: Mike, yes a joint effort between the utility, manufacturer and standards jurisdictions is a goal for Utilicorp as we move forward with offering from our strategic marketing partners, and bring PQ technologies to the public

POWERQUALITY TKEY: We are finding that many mfgs want to produce PQ compatible equipment, but they have no clue as to what to test for

POWERQUALITY ANDYV: Tom>>will the IEC standards help?

POWERQUALITY TKEY: Its up to the utility to help define normal events IEC will take time

POWERQUALITY SKLEIN: You can't have a commodity product with all the variation in specifications we have been discussing. It has to be regular, premium, and super premium or it won't work.

POWERQUALITY JOHNMUNG: Tom as a former manufacturer i sympathize—your work at PEAC is invaluable but anecdotal knowledge from utility people on the firing line is equally important

POWERQUALITY TKEY: Super premium, does that mean a UPS?

POWERQUALITY ANDYV: how do you stop a facility from affecting you super-premium power?

15 POWERQUALITY TKEY: John, Good Point

POWERQUALITY SAM: Tkey, a ups, local generation or redundant service

POWERQUALITY SKLEIN: This is what I meant earlier by electricity being a non-virtualizable service. You can't make each customer see the power system as though they had their own dedicated generating plant.

POWERQUALITY BRIAN: THE CHAT CHANNEL WILL BE OPEN 24/HRS/DAY 7 DAYS A WEEK

POWERQUALITY TKEY: I must sign out for about 5 minutes but I'll be back

POWERQUALITY BRIAN: OK TOM

POWERQUALITY MSTEARS: PQ for facilities need to be done with a system perspective to get the right resolution

POWERQUALITY BBOYER: Andy's question is still relevant—how do stop a facility from downgrading utility service to other customers?

POWERQUALITY BRIAN: MIKE>>LETS SWITCH BACK TO RETAIL WHEELING

POWERQUALITY WARD: You work with that customer to do whatever is needed to correct their disturbances.

POWERQUALITY BBOYER: Be more specific

POWERQUALITY MSTEARS: Interaction between facilities can be evaluated and designed for

POWERQUALITY JOHNMUNG: as a key to hardening it helps to identify the most sensitive circuits, i.e. microprocessor logic, test for vulnerability under common surges, sags, rfi, and then notify users that their equipment contains these subsystems— for a start

POWERQUALITY BRIAN: hi DOUG

45 POWERQUALITY GRAVELY: Brian: Are you saving this session as a file? Can we get a list of chat session participants?

POWERQUALITY BRIAN: s, we may

POWERQUALITY DMARKS: gravely: hit TAB and use 50 the arrow keys to page through the list of participants

POWERQUALITY SKLEIN: Will the session be available for downloading?

POWERQUALITY BRIAN: yes, Mike we will publish in PQ Magazine

55 POWERQUALITY WARD: Part of the agreement for high quality power should be that the customer receiving the power will not disturb the utility system.

POWERQUALITY BRIAN: if john let's us . . . .

POWERQUALITY GRAVELY: I tried that, however, net-60 cruiser has a software problem and I cannot see all of the names.

POWERQUALITY SAM: most utilities rules and regulations already require that a customer not put anything back out on the utility system

65 POWERQUALITY BRIAN: MIKE G.>>WE WILL PUBLISH THIS IN PQ MAG NEXT MONTH IF ASNDY LETS US

POWERQUALITY BRIAN: HOW ABOUT IT ANDY?  
 POWERQUALITY ANDYV: ok  
 POWERQUALITY BRIAN: COOL  
 POWERQUALITY WARD: Standards will have to be set for what constitutes a disturbance, and then the utility should work with customers, install filters, etc., to be sure they stay within the rules.  
 POWERQUALITY BRIAN: THANKS ANDY  
 POWERQUALITY ANDYV: a meeting review or a summary of events  
 POWERQUALITY GRAVELY: It would be good to take a few minutes to recommend how the November 15 session could be more effective.  
 POWERQUALITY BRIAN: A SYNAPSE OF THIS CHAT WILL BE IN NEXT MONTHS PQ MAG  
 POWERQUALITY WINDSONG:  
 POWERQUALITY SKLEIN: I don't get PQ mag. Will it be on the Net?  
 POWERQUALITY BRIAN: STAN SIGN UP FOR IT ON OUR HOME PAGE  
 POWERQUALITY DOUGC: the transcript of this conference will be available on the Energyone pages.  
 POWERQUALITY BRIAN: YOU CAN SIGN UP ON LINE  
 POWERQUALITY BRIAN: [HTTP://WWW.UTILICORP.COM](http://WWW.UTILICORP.COM)  
 POWERQUALITY WINDSONG: Good comment Gravely  
 Comments from the users would be greatly appreciated!!  
 POWERQUALITY SAM: PQ magazine is available online on the UCU internet bulletin board, <http://www.utilicorp.com>  
 POWERQUALITY ANDYV: or link from powerquality.com  
 POWERQUALITY BRIAN: YOU CAN GET A FREE MAG SUBSCRIPTION FROM UTILICORP'S HOME PAGE  
 POWERQUALITY SKLEIN: Thanks  
 POWERQUALITY BRIAN: ALSO, THERE IS A PQ FORUM ON OUR HOME PAGE  
 POWERQUALITY JOHN MUNG: for November 15 shall we pick five key topics? suggest health care, energy storage rfi/emc as a few topics—also new gas turbine 25 kw generator just announce today—just some suggestions  
 POWERQUALITY BRIAN: GOOD SUGGESTION JOHN  
 POWERQUALITY ANDYV: lets develop an outline of topics for next time.  
 POWERQUALITY BRIAN: OK  
 POWERQUALITY GRAVELY: One suggestion for November 15—Have participants place a list of desired topics on your other chat box and prioritize by interest level.  
 POWERQUALITY SKLEIN: How about deregulation and retail wheeling.  
 POWERQUALITY BRIAN: COMMENTS SHOULD BE SENT TO ME BY EMAIL  
 POWERQUALITY BRIAN: [BSPENCER@UTILICORP.COM](mailto:BSPENCER@UTILICORP.COM)  
 POWERQUALITY BRIAN: 15 minutes remaining  
 POWERQUALITY ANDYZYREK: Let's discuss the new standard IEEE 1159.  
 POWERQUALITY ANDYV: may be we could generate an online questionnaire to see what people are needing discussed.  
 POWERQUALITY BRIAN: but the chat is available for 24 hrs/day 7 days a week  
 POWERQUALITY ANDYV: what does IEEE1159 address?  
 POWERQUALITY BRIAN: Please send all suggestion to me for our next chat

POWERQUALITY BRIAN: Bobbin is not banned now  
 POWERQUALITY BRIAN: my fault  
 POWERQUALITY ANDYZYREK: New PQ measuring techniques. We have not received our issue yet.  
 5 POWERQUALITY ANDYV: You should have it my now.  
 POWERQUALITY BRIAN: Bobbin is not banned anymore  
 POWERQUALITY ANDYV: you can e-mail me or john at: [editors@powerquality.com](mailto:editors@powerquality.com)  
 POWERQUALITY BRIAN: is two hours right fdo rhtis feature  
 10 POWERQUALITY JOHN MUNG: do i understand that many programmable logic controllers can be hardened by addition of simple CVT like a sola?  
 POWERQUALITY ANDYZYREK: Yes, but it is being delivered by snail mail.  
 15 POWERQUALITY ANDYV: no 2nd class  
 POWERQUALITY BRIAN: 15 minutes to go  
 POWERQUALITY ANDYV: Please e-mail me you complete name and address and I will mail you one today 1st class . . . now is that service or what?  
 20 POWERQUALITY BRIAN: Is two hours long enough for this chat?  
 POWERQUALITY TKEY: Im back  
 POWERQUALITY WARD: Brian, I think two hours is about right.  
 25 POWERQUALITY BRIAN: hi tom  
 POWERQUALITY BRIAN: good . . .  
 POWERQUALITY ANDYV: yes I agree 2hrs  
 POWERQUALITY BRIAN: anyone else  
 POWERQUALITY ANDYV: it the time of day correct?  
 30 POWERQUALITY BRIAN: questions now . . .  
 POWERQUALITY SKLEIN: The topic foremost in my mind right now is what to eat for lunch. I enjoyed the discussion, which I understand has been historic in some sense. But I think I will sign off now and go eat.  
 35 POWERQUALITY SAM: 2 hours seems to work very well  
 POWERQUALITY DANIELH: time of day is good  
 POWERQUALITY BILLMANN: 2 hrs is fmc  
 POWERQUALITY MSTEARS: Two hours work well, the middle of the day allows east and west coast to be involved  
 40 POWERQUALITY BRIAN: good, Will everyone be back for the next chat  
 POWERQUALITY GRAVELY: Brian, I will forward my recommendations on email, thanks.  
 POWERQUALITY BILLMANN: yes i'll be back  
 45 POWERQUALITY ANDYZYREK: Brian, would it be possible to have a forum published on your home page prior to November 15.  
 POWERQUALITY BRIAN: I would like to do another chat before November 15th, any thoughts  
 50 POWERQUALITY ANDY: U bet  
 POWERQUALITY SAM: I believe that this chat may set an attendance record for most participants during a first session  
 POWERQUALITY JOHN MUNG: a parting thought—"harmonics make the music rich, they make the tone inspiring—harmonics in your power line WILL BLOW THE BUILDINGS WIRING" tIM MUNGENAST  
 55 POWERQUALITY BRIAN: Your're all invited to return  
 POWERQUALITY BRIAN: the next chat  
 POWERQUALITY BRIAN: This chat feature will help set  
 60 standards of how we view our industry  
 POWERQUALITY WARD: For me this was two hours very well spent, and it was quite enjoyable.  
 POWERQUALITY BRIAN: Tell a colleague about our chat November 15th  
 65 POWERQUALITY BRIAN: Thanks Ward  
 POWERQUALITY BRIAN: I would like to do this on a weekly basis, any thoughts yet

POWERQUALITY GRAVELY: John: talk it up in Germany!!  
 POWERQUALITY ANDY: I would like to thank utilicorp and everyone envolved.  
 POWERQUALITY BRIAN: Thanks Andy for your help  
 POWERQUALITY WARD: Did this notice go out to the Power Globe mailing list?  
 POWERQUALITY BRIAN: No, but could help us Ward with that  
 POWERQUALITY BRIAN: Lets all get the word out about this chat  
 POWERQUALITY WARD: I'm on the list and will be glad to forward anything you wish to it.  
 POWERQUALITY BRIAN: Please use it whenever you wish, even schedule your own chats whenever  
 POWERQUALITY JOHN MUNG: MANY THANKS TO UTILICORP AND ALL INVOLVED- FROM AN OLD STEAM BOATER :)-  
 POWERQUALITY BRIAN: thanks ward  
 POWERQUALITY BRIAN: Hi duane  
 POWERQUALITY BRIAN: This chat is offically over, but do stick around for foir more chatting  
 POWERQUALITY BRIAN: Thanks to all, cya on November 15th  
 POWERQUALITY MSTEARS: Ward, Tom, and John I appreciate your participation  
 POWERQUALITY BRIAN: Thanks Guys and Ladies!!!!!!!!!  
 POWERQUALITY SWPPD: WHAT IS HAPPENING ON November. 15  
 POWERQUALITY BRIAN: our next chat with a panel of experts  
 POWERQUALITY BRIAN: topic yet to be decided  
 POWERQUALITY DPSWOBO: Hi Brian, Sorry I was on the phone and could not respond right away. Did I get the time incorrectly for the chat?  
 POWERQUALITY BRIAN: please send us a suggestions  
 POWERQUALITY ANDY: good bye ;-)  
 POWERQUALITY BRIAN: Yeah, but stick around to chat with some friends  
 POWERQUALITY BRIAN: We had a total of 50 people and avg of 20 people at one time  
 POWERQUALITY BRIAN: Thanks everyone!!!Lunch Time  
 POWERQUALITY BRIAN: Next Chat November 15th at 10-12 ct  
 POWERQUALITY BRIAN: But this chat line is available 24hrs/day/7 days a week  
 POWERQUALITY BRIAN: Please use it whenever  
 POWERQUALITY GRAVELY: Thanks to the panel and Utilicorp for the session!  
 POWERQUALITY BRIAN: Talk to your collegues and friends about any particular topic  
 POWERQUALITY BRIAN: Come see our home page for new topics and chats  
 POWERQUALITY BRIAN: <http://www.utilicorp.com>  
 POWERQUALITY BRIAN: Thanks Power Quality Assurance Magazine and All our panel members  
 POWERQUALITY BRIAN: :)  
 POWERQUALITY SWPPD: MISSED THIS SESSION. ICAN WE GET HARD COPY INFO?  
 POWERQUALITY BRIAN: yes swpp, it will be published in pq mag and our home page  
 POWERQUALITY BRIAN: catch our next session on November 15th  
 POWERQUALITY BRIAN: 10-12 ct  
 POWERQUALITY SWPPD: THANKS A BUNCH!!

POWERQUALITY SWPPD: GOOD BYE!  
 POWERQUALITY BRIAN: no prob  
 POWERQUALITY BRIAN: cya  
 POWERQUALITY DESWETT:  
 5 POWERQUALITY TKEY: Good session brian, ddorr and I will be signing off now, look forward to the next session  
 POWERQUALITY DPSWOBO: Thanks for the info on the next session, we will get on next time  
 POWERQUALITY DMARKS: I hope everyone enjoyed this session.  
 POWERQUALITY MSTEARS: I am logging off Thanks  
 POWERQUALITY SAM: This is Tony and I am watching the action . . . we made history. Great work guys.  
 POWERQUALITY BRIAN: Lunch time  
 15 POWERQUALITY BRIAN: Next chat is November 15th  
 POWERQUALITY BRIAN: 10-12 ct  
 POWERQUALITY BRIAN: please continue to look at utilicorp's hp  
 POWERQUALITY BRIAN: for more info  
 20 POWERQUALITY BRIAN: email if you have any questions regarding the chat  
 POWERQUALITY BRIAN: bspencer@utilicorp.com  
 POWERQUALITY BRIAN: later  
 SUPPORT BRIAN: hi guys  
 SUPPORT BRIAN: success  
 SUPPORT BRIAN: BRIAN: yess  
 !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!  
 SUPPORT BRIAN: thanks for the help  
 SUPPORT BRIAN: cya  
 30 POWERQUALITY BRIAN: next chat on November 15th  
 POWERQUALITY BRIAN: 10-12 ct  
 POWERQUALITY BRIAN: any suggestion on topics please contact me by email  
 POWERQUALITY BRIAN: bspencer@utilicorp.com  
 35 POWERQUALITY BRIAN: hi chuck  
 POWERQUALITY BRIAN: hi randy  
 POWERQUALITY CPRECS: hello brian  
 POWERQUALITY BRIAN: How are you chuck  
 POWERQUALITY CPRECS: how has the participation been?  
 40 POWERQUALITY BRIAN: I am sorry you missed the official chat, but do come back at any time for some chatting  
 POWERQUALITY BRIAN: great 20 people avg. 50 total people  
 POWERQUALITY CPRECS: ?yes, i got some conflicting info  
 POWERQUALITY BRIAN: transcripts will be in PQ mag next month and on utilicorp's home page  
 POWERQUALITY CPRECS: what were the topics discussed?  
 POWERQUALITY BRIAN: how is that chuck  
 POWERQUALITY BRIAN: power quality, standards,  
 POWERQUALITY BRIAN: retail wheeling  
 POWERQUALITY BRIAN: cya, lunch time  
 55 POWERQUALITY CPRECS: later  
 POWERQUALITY BRIAN: bye all  
 POWERQUALITY BRIAN: email me chuck  
 POWERQUALITY RB: sorry I missed it. I got 12-2 est off the net. bye.  
 POWERQUALITY BRIAN: sorry RB  
 POWERQUALITY BRIAN: miss information  
 POWERQUALITY BRIAN: next chat is 10-12  
 POWERQUALITY BRIAN: ct  
 POWERQUALITY BRIAN: November 15th  
 65 POWERQUALITY BRIAN: bye  
 POWERQUALITY RB: thanks  
 POWERQUALITY BRIAN: no prob, tell all

POWERQUALITY ANDY: Is anyone still here talking about power quality?  
 POWERQUALITY DAVE: Just signed on that is what I was trying to find out  
 POWERQUALITY ANDY: the PQ chat was running from 11:00-1:00est  
 POWERQUALITY ANDY: Were you involved then?  
 POWERQUALITY DAVE: No I just got a chance to sign on now  
 POWERQUALITY ANDY: there were some great discussions.  
 POWERQUALITY ANDY: The transcripts will be available to down load at utilicorp.com Brian Spencer says.  
 POWERQUALITY ANDY: What is your experience in PQ  
 POWERQUALITY DAVE: That is what I was looking for, are they available to down load now, I work in a data center and have worked with UPS systems for about 12 years  
 POWERQUALITY DAVE: I did field service for Exide  
 POWERQUALITY ANDY: Brian just went to Lunch in KS I don't know when it will availalbe.  
 POWERQUALITY DAVE: Thanks for the Info on the downloads, I hope they do this again  
 POWERQUALITY ANDY: so do I.  
 POWERQUALITY DAVE: What is your experience on PQ  
 POWERQUALITY ANDY: I am the editor of Power quality mag.  
 POWERQUALITY ANDY: Good mag., I pick up alot in it  
 POWERQUALITY ANDY: do you receive power quality assurance magazine?  
 POWERQUALITY ANDY: great glad to hear it.  
 POWERQUALITY DAVE: We get it at work but I have asked to have it sent to my home  
 POWERQUALITY ANDY: did you get the latest issue with the lighting on the cover?  
 POWERQUALITY DAVE: Not yet, have seen it on line though  
 POWERQUALITY ANDY: great.  
 POWERQUALITY ANDY: any suggestion for editorial?  
 POWERQUALITY DAVE:  
 POWERQUALITY DAVE: no it is good  
 POWERQUALITY ANDY: ok.  
 POWERQUALITY ANDY: I am currently editing an article about VRLA battery charging.  
 POWERQUALITY DAVE: I am working on a resonant problem with Utility and was looking for info  
 POWERQUALITY ANDY: explain  
 POWERQUALITY ANDY: by the way my e-mail is andy@powerquality.com  
 POWERQUALITY DAVE: we are running a lot of 5th har. across our system in a large data center  
 POWERQUALITY ANDY: I see  
 POWERQUALITY ANDY: I will try to address this in an upcomming issue. may be march/april or even sooner.  
 POWERQUALITY DAVE: we have 4800 kw of UPS cap on two transformers and we have alot of 5th on our other boards  
 POWERQUALITY ANDY: If you are interested in writing up a case history including you solutions I would like to review it and poss. publish  
 POWERQUALITY MSTONEHAM: Is this chat session still active?  
 POWERQUALITY ANDY: YES  
 POWERQUALITY ANDY: We can't get enough!!!  
 POWERQUALITY DAVE: when we can get it fixed, It looks like we have a problem with input filtering on a couple of UPS,s  
 POWERQUALITY ANDY: input fro the utility or a generator?

POWERQUALITY DAVE: utility  
 POWERQUALITY MSTONEHAM: I understand there was a chat session earlier today with some guest "chatters". Is there an archive of the discussion since I missed it?  
 5 POWERQUALITY DAVE: we have 66 kv to 12 kv then to 480 v by 4 trans on property  
 POWERQUALITY ANDY: What are you leaning towards in a solution dave  
 POWERQUALITY ANDY: MTONEHAM>>yes but I don't know when. contact BSPENCER@utilicorp. com  
 POWERQUALITY DAVE: the computer seem to have no problem, but we have alot of motor heating/bad PF  
 POWERQUALITY MSTONEHAM: Thanks!  
 POWERQUALITY DAVE: we currently are working with a consultant but I am looking for more info  
 POWERQUALITY ANDY: will capacitors solve your problem  
 POWERQUALITY ANDY:  
 POWERQUALITY ANDY: there also is a forum under utilicorp.com where you can post you questions.  
 POWERQUALITY DAVE: Each 600 kw UPS has Input filtering/may need trap for 5th  
 POWERQUALITY ANDY: or you can access it form powerquality.com  
 25 POWERQUALITY DAVE: thanks  
 POWERQUALITY ANDY: Talk to ya later dave  
 POWERQUALITY DAVE: is PQ.com your Mag  
 POWERQUALITY ANDY: bye  
 POWERQUALITY DAVE: bye  
 30 POWERQUALITY ANDY: yes  
 POWERQUALITY DAVE: thanks  
 POWERQUALITY ANDY: :-)  
 POWERQUALITY MSTONEHAM:  
 POWERQUALITY MSTONEHAM: Is anyone else hear?  
 There doesn't seem to be much traffic.  
 POWERQUALITY MSTONEHAM:  
 POWERQUALITY CILCOJRG: Hello—is the conference over?  
 POWERQUALITY CILCOJRG:  
 40 POWERQUALITY CILCOJRG: hello  
 POWERQUALITY BRIAN: yes  
 POWERQUALITY BRIAN: the conference was from 10-12 ct  
 POWERQUALITY BRIAN: someone gave out the wrong information  
 45 POWERQUALITY BRIAN: hello cilco  
 POWERQUALITY BRIAN: anyone still there  
 SUPPORT BRIAN: hi all  
 SUPPORT BRIAN: anyone there  
 50 POWERQUALITY BRIAN: jenny>>are you there  
 POWERQUALITY CJBOUTCHER: is anyone here a utility employee?  
 POWERQUALITY BRIAN: Hi chris  
 POWERQUALITY BRIAN: how are you?  
 55 POWERQUALITY CJBOUTCHER: hi brian it is quiet in here  
 POWERQUALITY BRIAN: the conference was at 10:00ct  
 POWERQUALITY CJBOUTCHER: ah I see  
 POWERQUALITY CJBOUTCHER: when is the next one?  
 60 POWERQUALITY BRIAN: November 15th  
 POWERQUALITY BRIAN: 10-12  
 POWERQUALITY BRIAN: ct  
 POWERQUALITY CJBOUTCHER: is the channel open at other times?  
 65 POWERQUALITY BRIAN: yes 24 hours a dfay  
 POWERQUALITY CJBOUTCHER: but not much discussion?

POWERQUALITY BRIAN: not right now,  
 POWERQUALITY BRIAN: cya  
 POWERQUALITY CJBOUTCHER: bye  
 POWERQUALITY BRIAN: hi jenny  
 POWERQUALITY JOSH: hello?  
 POWERQUALITY BRIAN: hi dan  
 POWERQUALITY BRIAN: hi dan  
 POWERQUALITY BRIAN: are you awake yet?  
 POWERQUALITY BRIAN: just giving present this a.m.  
 POWERQUALITY BRIAN: who is guest96  
 POWERQUALITY GUEST96: test

While a particular embodiment of the present invention has been disclosed, it is to be understood that various different modifications are possible and are within the true spirit of the invention, the scope of which is to be determined with reference to the claims set forth below. There is no intention, therefore, to limit the invention to the exact disclosure presented herein as a teaching of one embodiment of the invention.

I claim:

1. Computerized human communication arbitrating and distributing system, including:  
 a controller computer;  
 a plurality of participant computers, each said participant computer connected to an input device for receiving input information from a user and to an output device for presenting user messages, each said user having a user identity;  
 connections through the Internet linking the controller computer with each of the participant computers; and controller software operating on and directing the controller computer to carry out the steps of:  
 arbitrating in accordance with predefined rules including a test for an authenticated user identity, which ones of the participant computers can be a member in one of a plurality of groups through the controller computer; and  
 distributing, in accordance with the predefined rules, the user messages in real time to the respective ones of the participant computers; wherein:  
 at least some of the user messages are multimedia messages.

2. The system of claim 1, further comprising:

participant software respectively operating on and directing each of the participant computers to enable one of said users to send one of the user messages to the controller computer and to enable arbitrating and the distributing of the one of the user messages.

3. The system of claim 1, wherein:

the user messages include an address to instruct the participant computers to optionally locate another multimedia message.

4. The system of claim 1, wherein:

the user messages include an address to compel the participant computers to locate an other message and to present the other message at the output device.

5. The system of claim 4, wherein:

the other message is displayed in a subscreen at the output device.

6. The system of claim 4, wherein the other message is a multimedia message.

7. The system of claim 1, wherein the test includes a challenge response test.

8. The system of claim 1, wherein:

the authenticated user identity is stored at the controller computer, and the authenticated user identity includes

at least two members from the group consisting of age, telephone number, fax number, name, company, postal address, E-mail address, and URL.

9. The system of claim 1, wherein:

the authenticated user identity is stored at the controller computer, and the authenticated user identity includes at least four members from the group consisting of age, telephone number, fax number, name, company, postal address, E-mail address, and URL.

10. The system of claim 1, wherein:

the authenticated user identity is stored at the controller computer, and the user identity includes at least six members from the group consisting of age, telephone number, fax number, name, company, postal address, E-mail address, and URL.

11. The system of claim 1, wherein:

the authenticated user identity is stored at the controller computer, and the authenticated user identity includes an authorization to add a group.

12. The system of claim 1, wherein:

the authenticated user identity is stored at the controller computer, and the authenticated user identity includes an authorization to moderate.

13. The system of claim 12, wherein:

the authenticated authorization to moderate includes an authorization to view and approve each said message of another of the users prior to the distributing.

14. The system of claim 12, wherein:

the authorization to moderate includes an authorization to grant an other of the users an authorization to have the other of the user's messages communicated without moderator approval prior to the distributing.

15. The system of claim 1, wherein:

the user identity is stored at the controller computer, and the user identity includes a guest authorization.

16. The system of claim 1, wherein:

the authenticated user identity is stored at the controller computer, and the authenticated user identity includes an authorization to change a user identity of an other of the users.

17. The system of claim 1, wherein:

the authenticated user identity is stored at the controller computer, and the authenticated user identity includes an authorization to view a user identity of an other of the users.

18. The system of claim 17, wherein:

the authenticated user identity includes an authorization to change the authenticated user identity of the user.

19. The system of claim 1, wherein:

the authenticated user identity is stored in controller computer, and the authenticated user identity includes an authorization to determine whether one said user in the group is visible to an other said user of the group.

20. The system of claim 1, wherein:

the controller computer is programmed to assign a unique abbreviation representing the user identity for facilitating the arbitrating and the distributing.

21. The system of claim 1, wherein:

the controller computer is programmed to store a transcript of the messages conveyed in the distributing.

22. The system of claim 2, wherein:

the respective participant software is not on at least one of the participant computers the when the Internet connections are made, and the at least one of the participant computers receives the participant software from the Internet connections.

23. The system of claim 22, wherein:  
the participator software received from the Internet connections is Java participator software.

24. The system of claim 2, wherein:  
the output device has a screen display of respective screen areas for each of the groups that include the respective participator computer; and  
each of the screen areas contains the respective user messages in the respective group.

25. The system of claim 24, wherein:  
the output device for a user with moderator authorization includes an additional screen area for messages pending for approval prior to the distributing.

26. The system of claim 2, wherein:  
the participator software presents the multimedia message on the respective output device by steps including:  
locating a computer program on a memory accessible to the respective one of the participator computers; and  
invoking the computer program to present the multimedia message at the respective output device.

27. The system of claim 2, wherein:  
the participator software presents the multimedia message on the respective output device by steps including:  
invoking an Internet browser to obtain and present the multimedia message on the respective output device.

28. The system of claim 2, wherein:  
a different version of the participator software operates on some of the participator computers, wherein one of the versions includes a text character terminal version and an other of the versions includes a Java version.

29. The system of claim 1, wherein:  
the user messages include group messages, private messages, and global messages.

30. The system of claim 1, further comprising:  
an additional connection linking the participator computers and the controller computer, the additional connection dedicated to carrying the user messages of one of the groups.

31. The system of claim 1, further comprising:  
an additional connection linking the participator computers and the controller computer, the additional connection dedicated to carrying the user messages of one of the users to an other of the users.

32. The system of claim 1, wherein:  
the controller computer is programmed to establish the authenticated user identity by a method comprising the steps of:  
communicating a guest authorization from the controller computer to one of the participator computers;  
communicating standardized entry fields from the controller computer to the one of the participator computers;  
in response to receipt by the controller computer from the one of the participator computers of data corresponding to the entry fields, testing the data by a comparison with other data accessible by the controller computer, and only if the data satisfies the testing, granting the authenticated user identity by storing the authenticated user identity at the controller computer and conveying the user authenticated identity to the participator computer.

33. The system of claim 1, wherein:  
the user messages include asynchronous status messages.

34. The system of claim 1, wherein:  
the user identity is stored in controller computer, and the user identity includes authorization for one of the users

having a respective one of the participator computers to be invisible to an other of the participator computers in the one of the groups while the one of the participator computers is viewing the messages of the other of the participator computers.

35. A method for using a computer apparatus to arbitrate and distribute human communication, the method including the steps of:  
connecting a plurality of participator computers with a controller computer through the Internet, each said participator computer for connecting to an input device to receive input information from a user and to an output device to present user messages, each said user having a user identity, the controller computer being programmed to control communication of messages between the participator computers; and  
storing a user identity at the controller computer, the user identity including an authorization for one of the users having a respective one of the participator computers to be invisible to an other of the participator computers while viewing the messages from the other of the participator computers.

36. The method of claim 35, further comprising the steps of:  
arbitrating with the controller computer, in accordance with predefined rules including a test for an authenticated user identity, which ones of the participator computers can be a member in one of a plurality of groups through the controller computer; and  
distributing with the controller computer, in accordance with the predefined rules, the messages in real time to the respective ones of the participator computers.

37. The method of claim 36, wherein:  
at least some of the user messages are multimedia messages.

38. The method of claim 35, wherein:  
at least some of the user messages are multimedia messages.

39. The method of claim 38, further comprising the steps of:  
operating participator software respectively on each of the participator computers to enable one of said users to send one of the messages to the controller computer and to enable the controller computer to carry out the arbitrating and the distributing.

40. A method for using a computer system to arbitrate and distribute human communication, the method including the steps of:  
connecting a plurality of participator computers with a controller computer through the Internet, each said participator computer for connecting to an input device to receive input information from a user and to an output device to present user messages, each said user having a user identity;  
programming the controller computer to control communication of the messages between the participator computers;  
programming the participator computers to enable sending respective ones of the messages to the communicator computer and receiving those of the messages distributed by the controller computer;  
arbitrating with the controller computer, in accordance with predefined rules including a test for an authenticated user identity, which ones of the participator computers can be a member in one of a plurality of groups through the controller computer; and

distributing with the controller computer, in accordance with the predefined rules, the messages in real time to the respective ones of the participator computers, wherein at least some of the user messages are multimedia messages.

41. The method of claim 40, further comprising the step of:

storing the authenticated user identity at the controller computer, the authenticated user identity including an authorization to be invisible to an other of the users while viewing the messages.

42. The method of claim 40, wherein the step of distributing includes distributing an address to an other message.

43. The method of claim 40, wherein the step of distributing includes distributing an address to another message and instructions requiring at least one of the participator computers to carry out the step of locating the other message at the address.

44. The method of claim 43, further comprising the step of:

displaying some of the other message in a subscreen at the output device.

45. The method of claim 43, wherein the step of distributing an address is carried out with the other message including a multimedia message.

46. The method of claim 40, wherein the step of arbitrating is carried out with the test including a challenge response test.

47. The method of claim 40, where in the step of arbitrating is carried out by:

storing the authenticated user identity at the controller computer, the authenticated user identity including respective representations of at least one member from the group consisting of age, telephone number, fax number, name, company, postal address, E-mail address, and URL.

48. The method of claim 40, wherein the step of arbitrating is carried out by:

storing the authenticated user identity at the controller computer, the authenticated user identity including respective representations of at least three members from the group consisting of age, telephone number, fax number, name, company, postal address, E-mail address, and URL.

49. The method of claim 40, wherein the step of arbitrating is carried out by:

storing the authenticated user identity at the controller computer, the authenticated user identity including respective representations of at least five members from the group consisting of age, telephone number, fax number, name, company, postal address, E-mail address, and URL.

50. The method of claim 47, wherein the step of arbitrating is carried out by:

storing the authenticated user identity at the controller computer, and the authenticated user identity includes an authorization to add a group.

51. The method of claim 48, wherein the step of arbitrating is carried out by:

storing the authenticated user identity at the controller computer, and the authenticated user identity includes an authorization to moderate.

52. The method of claim 47, wherein the step of arbitrating is carried out by:

storing the authenticated user identity at the controller computer, and the authenticated user identity includes

an authorization to view and approve each said message of another user prior to the distributing.

53. The method of claim 52, wherein the step of storing is carried out with the authenticated user identity including an authorization to grant an other user authorization to have the other user's messages communicated without moderator approval prior to the distributing.

54. The method of claim 47, wherein the step of arbitrating is carried out by:

10 storing the user identity at the controller computer, and the user identity includes a guest authorization.

55. The method of claim 54, wherein the step of arbitrating is carried out by:

15 storing the authenticated user identity at the controller computer, and the authenticated user identity includes an authorization to change an authenticated user identity of an other of the users.

56. The method of claim 48, wherein the step of arbitrating is carried out by:

20 storing the authenticated user identity at the controller computer, and the authenticated user identity includes an authorization to view an authenticated user identity of an other of the users.

57. The method of claim 40, wherein the step of arbitrating is carried out by:

25 storing the authenticated user identity at the controller computer, and the authenticated user identity includes an authorization to determine whether one said user in the group is visible to an other said user of the group.

58. The method of claim 47, wherein the step of distributing is carried out by:

30 storing a transcript of the messages conveyed in the distributing.

59. The method of claim 47, wherein the step of programming the respective participator computers is carried out by:

35 first making the respective participator computer Internet connections without any version of the participator software one of the participator computers; and then providing the authenticated user identity from the controller computer to the user of the one of the participator computers via the respective Internet connections; and then

45 receiving the participator software from the controller computer at the one of the participator computers via the respective Internet connections.

60. The method of claim 48, wherein the step of programming the respective participator computers is carried out by:

50 communicating the participator software from the controller computer to the participator computer via the respective Internet connections, and wherein the participator software is Java participator software.

61. The method of claim 49, wherein the step of programming the respective participator computers is carried out by:

55 programming the respective participator computers to form a screen display at the output device of respective areas for each of the groups in which the respective participator computer is a member, each of the screen areas for containing the respective user messages in the respective group.

62. The method of claim 48, wherein the step of programming the respective participator computers is carried out by:

programming the respective participator computers to form a screen display at the output device of respective areas for each of the groups in which a respective one of the respective participator computers is a member, each of the screen areas for containing the respective user messages in the respective group, and for each of the participator computers having moderator authorization, to form an additional screen area for those of the messages pending for approval prior to the distributing.

63. The method of claim 47, wherein the step of programming the respective participator computers includes programming the respective participator computers to present one of the messages as the multimedia message on the respective output device by steps including:

locating a computer program on a memory accessible to the respective one of the participator computer; and invoking the computer program to present the multimedia message at the respective output device.

64. The method of claim 48, wherein the step of programming the respective participator computers includes programming the respective participator computers to present one of the messages as the multimedia message on the respective output device by steps including:

invoking an Internet browser to present the multimedia message at the respective output device.

65. The method of claim 47, wherein the step of programming the respective participator computers includes programming different ones of the participator computers different two versions of the participator software, wherein one of the versions includes a text character terminal version and another of the versions includes a Java application.

66. The method of claim 49, wherein the step of distributing is carried out by:

conveying the messages including group messages, private messages, and global messages.

67. The method of claim 47, further comprising the step of:

forming a second connection linking the participator computers and the controller computer, the additional connection dedicated to carrying the user messages of one of the particular groups.

68. The method of claim 47, further comprising the step of:

forming a second connection linking the participator computers and the controller computer, the additional connection dedicated to carrying the user messages of one user to one other of the users.

69. The method of claim 40, further comprising the steps of:

providing the authenticated user identity by a method comprising the steps of:

communicating a guest authorization from the controller computer to one of the participator computers;

communicating standardized entry fields from the controller computer to the participator computer,

communicating data from the entry fields to the controller computer;

testing the data by a comparison with other data in a database accessible to the controller computer; and

only if the data passes the testing, granting the authenticated user identity by storing the authenticated user identity at the controller computer and conveying the user authenticated identity to the participator computer.

70. The method of claim 47, wherein the messages include asynchronous status messages; and further comprising the steps of

storing the authenticated user identity at the controller computer, the authenticated user identity including an authorization to be invisible to an other of the users while viewing the messages.

71. The method of claim 40, wherein the step of arbitrating is carried out by:

storing the authenticated user identity at the controller computer, and the authenticated user identity includes an authorization to set a size limit for the user messages.

72. The method of claim 40, wherein the step of arbitrating is carried out by:

storing the authenticated user identity at the controller computer, and the authenticated user identity includes an authorization to form a subgroup of some of the participator computers in a group.

73. The method of claim 40, wherein the step of arbitrating is carried out by:

storing the authenticated user identity at the controller computer, and the authenticated user identity includes an authorization to set user identities for the group.

74. The method of claim 40, wherein the step of distributing is carried out by:

distributing the user messages including independent data types, the data types including audio and video data types.

\* \* \* \* \*

UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION

PATENT NO. : 5,956,491  
DATED : September 21, 1999  
INVENTOR(S) : Daniel A. Marks

Page 1 of 3

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 5.

Line 17, after Interface, delete "6".

Column 6.

Line 66, delete "80", and there insert -- 78 --.

Line 67, delete "78", and there insert -- 80 --.

Column 7.

Line 4, delete "remove", and there insert -- add --.

Line delete "88", and there insert -- 86 --.

Column 8.

Line 2, after memory, delete "4".

Line 60, delete "5", and there insert -- 3 --.

Drawings.

Figure 1, insert the number "1" after the word "SYSTEM", as shown on the enclosed Figure 1.

Figure 1, delete the reference number "1" and there insert the number -- 3 --, as shown on the enclosed Figure 1.

Figure 1, please enter the number "8" four times, as shown on the enclosed Figure 1.

Figure 1, please make all arrows point in both directions, as shown on the enclosed Figure 1.

Figure 3, insert the number "36" above MEMBER LIST OF A GROUP, as shown on the enclosed Figure 3.

Figure 3, delete line A, as shown on the enclosed Figure 3.

Figure 3, insert line B, as shown on the enclosed Figure 3.

Signed and Sealed this

Twentieth Day of August, 2002

Attest:



Attesting Officer

JAMES E. ROGAN  
Director of the United States Patent and Trademark Office

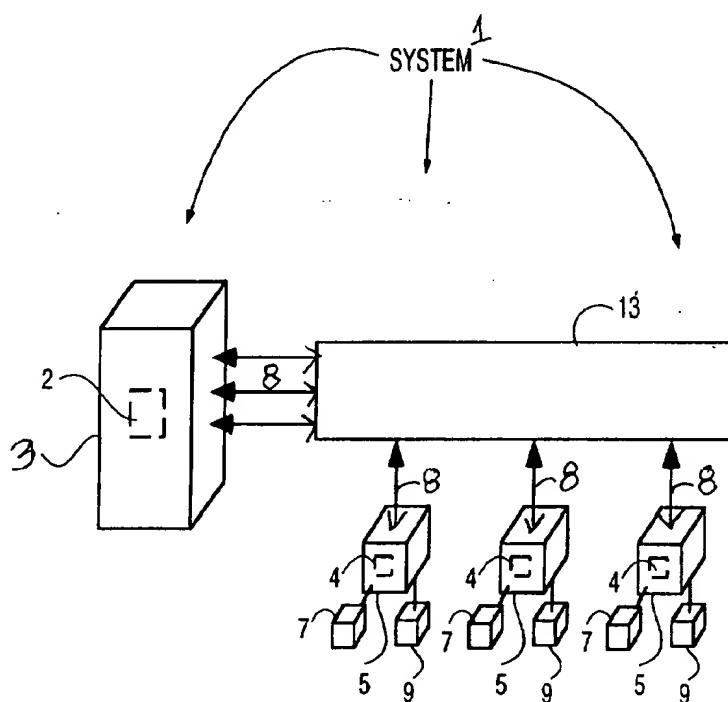
U.S. Patent

Sep. 21, 1999

Sheet 1 of 22

5,956,491

FIG. 1



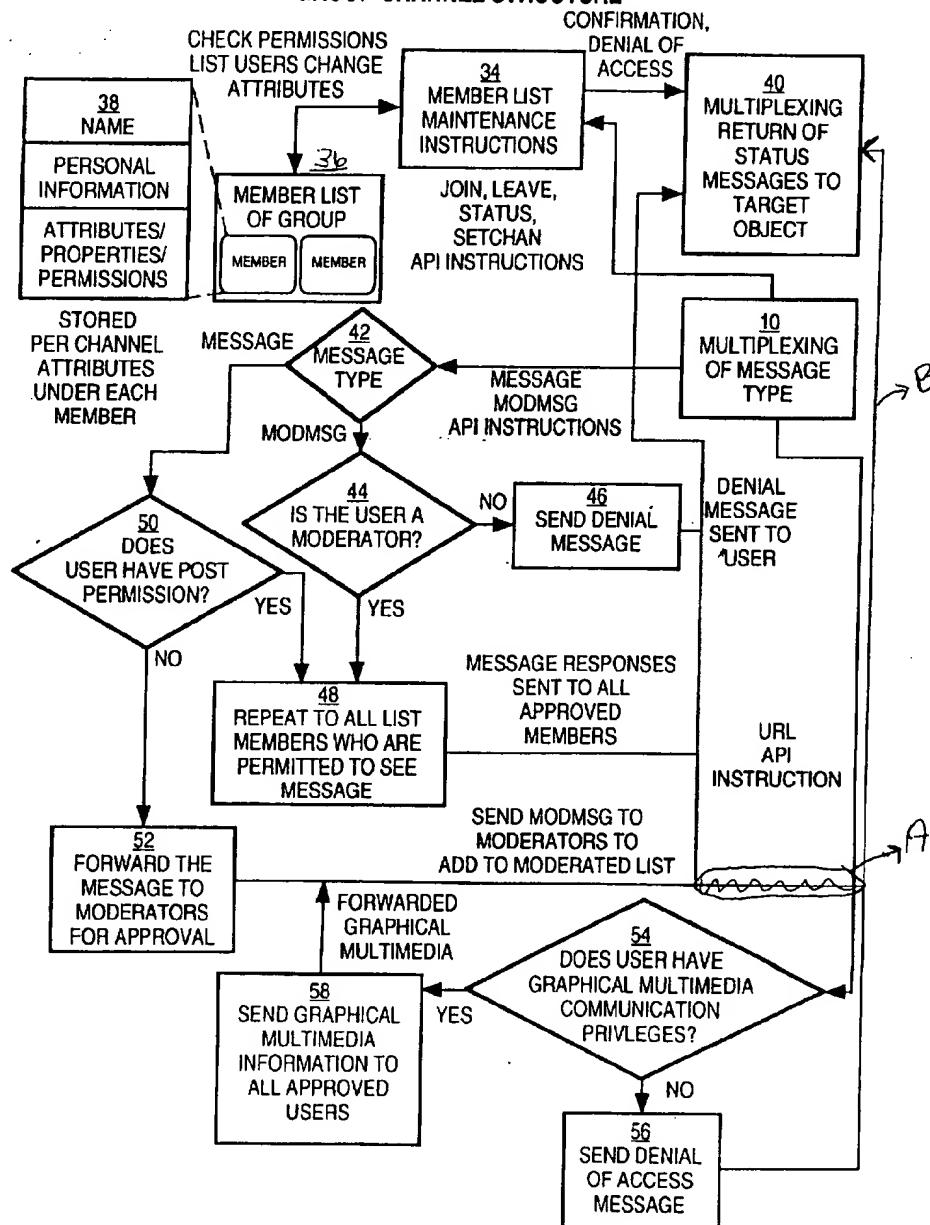
U.S. Patent

Sep. 21, 1999

Sheet 3 of 22

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FIG. 3

3/22  
DATA AND COMMUNICATIONS  
DEPENDENCY DIAGRAM CONTROLLER  
GROUP CHANNEL STRUCTURE

UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION

PATENT NO. : 5,956,491  
DATED : September 21, 1999  
INVENTOR(S) : Daniel A. Marks

Page 1 of 4

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Title page.

Delete the title page and insert the title page attached.

Drawings.

Replace drawing sheets 1 and 3, with attached drawing sheets 1 and 3.

Column 5.

Line 17, after Interface, delete "6".

Column 6.

Line 66, delete "80", and there insert -- 78 --.

Line 67, delete "78", and there insert -- 80 --.

Column 7.

Line 4, delete "remove", and there insert -- add --.

Line 6, delete "88", and there insert -- 86 --.

Column 8.

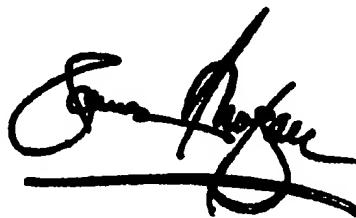
Line 2, after "memory", delete "4".

Line 60, delete "5", and there insert -- 3 --.

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Third Day of September, 2002

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JAMES E. ROGAN  
Director of the United States Patent and Trademark Office



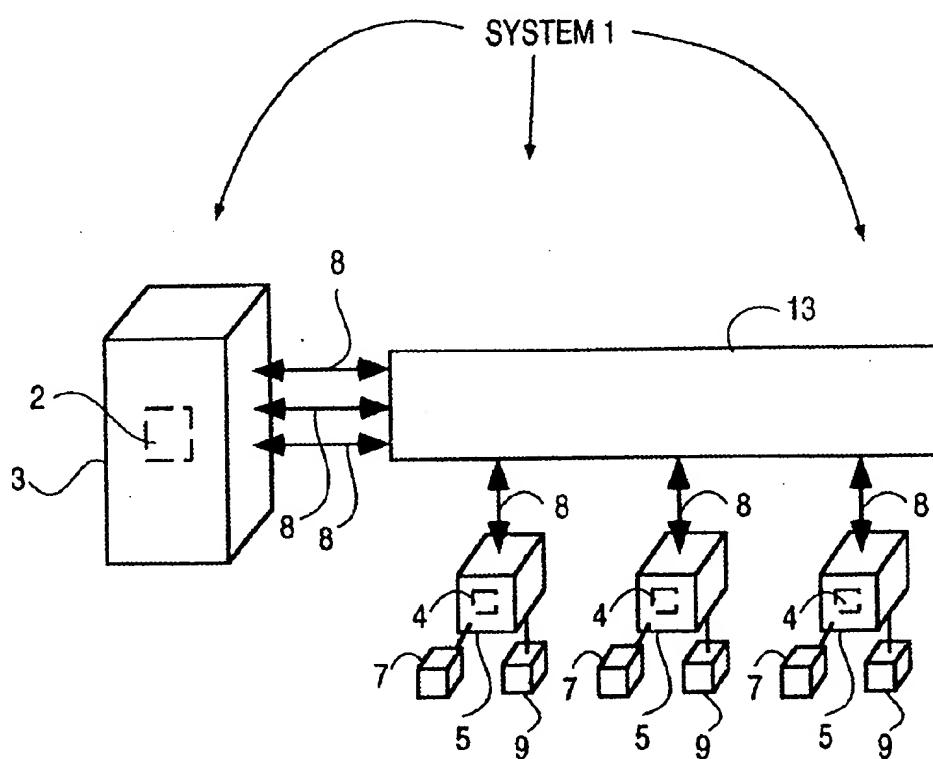
U.S. Patent

Sep. 21, 1999

Sheet 1 of 22

5,956,491

FIG. 1



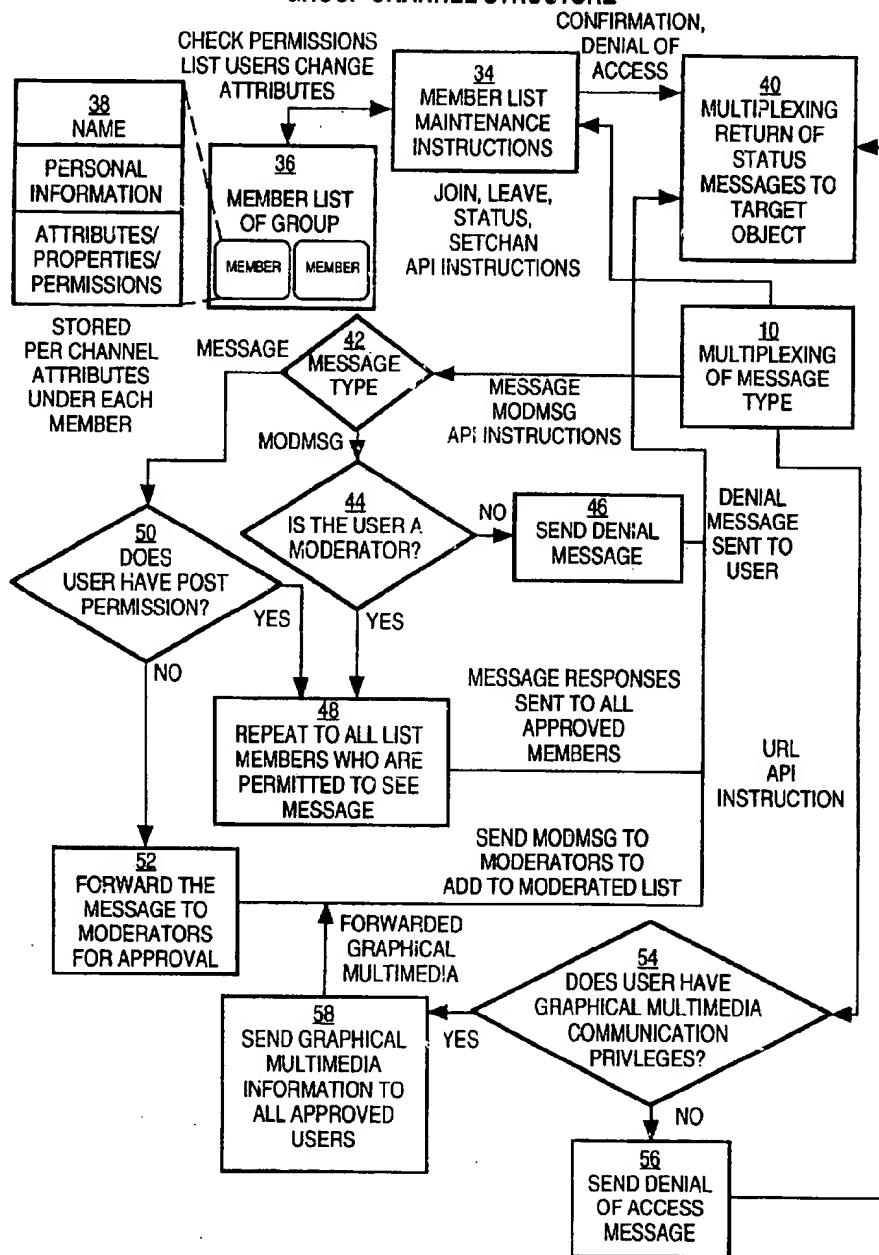
U.S. Patent

Sep. 21, 1999

Sheet 3 of 22

5,956,491

FIG. 3

DATA AND COMMUNICATIONS  
DEPENDENCY DIAGRAM CONTROLLER  
GROUP CHANNEL STRUCTURE

UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION

PATENT NO. : 5,956,491  
DATED : September 21, 1999  
INVENTOR(S) : Daniel A. Marks

Page 1 of 4

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Replace drawing sheets 1 and 3, with attached drawing sheets 1 and 3.

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Column 7.

Line 4, delete "remove", and there insert -- add --.

Line 6, delete "88", and there insert -- 86 --.

Column 8.

Line 2, after "memory", delete "4".

Line 60, delete "5", and there insert -- 3 --.

This certificate supersedes Certificate of Correction issued August 20, 2002 and September 3, 2002.

Signed and Sealed this

Tenth Day of September, 2002

Attest:



Attesting Officer

JAMES E. ROGAN  
Director of the United States Patent and Trademark Office



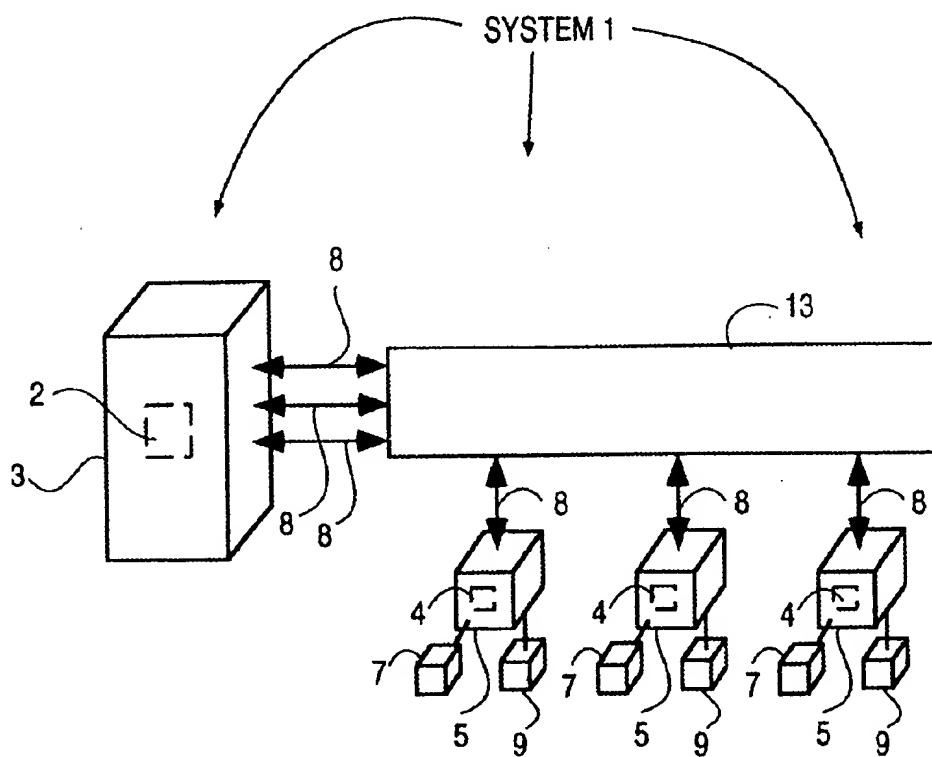
U.S. Patent

Sep. 21, 1999

Sheet 1 of 22

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FIG. 1



U.S. Patent

Sep. 21, 1999

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5,956,491

FIG. 3

DATA AND COMMUNICATIONS  
DEPENDENCY DIAGRAM CONTROLLER  
GROUP CHANNEL STRUCTURE